Thank you for choosing this Icom product. The IC-7300 HF/50 MHz TRANSCEIVER is designed and built with Icom’s state of the art technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation. We appreciate you making the IC-7300 your transceiver of choice, and hope you agree with Icom’s philosophy of “technology first.” Many hours of research and development went into the design of your IC-7300.

**IMPORTANT**

**READ ALL INSTRUCTIONS** carefully completely before using the transceiver.

**SAVE THIS INSTRUCTION MANUAL—** This instruction manual contains full operating instructions for the IC-7300.

**FEATURES**

- **RF Direct Sampling System**
  The IC-7300 employs an RF direct sampling system. RF signals are directly converted to digital data and processed in the FPGA. This system is a leading technology marking an epoch in amateur radio.

- **Real-Time Spectrum Scope**
  The spectrum scope is class-leading in resolution, sweep speed and dynamic range. When you touch the scope screen on the intended signal, the touched area is magnified. The large 4.3 inch color TFT touch LCD offers intuitive operation.

- **New “IP+” Function**
  The new IP Plus function improves 3rd order intercept point (IP3) performance. When a weak signal is received adjacent to strong interference, the AD converter is optimized against signal distortion.

- **Class Leading RMDR and Phase Noise Characteristics**
  The RMDR is improved to about 97dB (typical value) and Phase Noise characteristics are also improved about 15dB (at 1 kHz frequency separation) compared to the IC-7200.

- A **4.3 inch touch panel color display**
- A **built-in automatic antenna tuner**
- **Multi-function control for easy settings**

**SUPPLIED ACCESSORIES**

- **Hand microphone (HM-219)**
- **DC power cable** (3 m: 9.8 ft)
- **CW key plug** (6.35 mm: 1/4” Stereo)
- **Speaker plug** (3.5 mm: 1/8” Stereo)
- **ACC plug** (13 pin)
- **Spare fuse** (5 A)
- **Spare fuse** (25 A)
- **Spare fuse** (30 A)
- **CD**

Different types of accessories may be supplied, or may not be supplied depending on the transceiver version.

This product includes RTOS “RTX” software, and is licensed according to the software license.

This product includes “zlib” open source software, and is licensed according to the open source software license.

This product includes “libpng” open source software, and is licensed according to the open source software license.

Refer to the Text files in the License folder of included CD for information on the open source software being used by this product.

**EXPLICIT DEFINITIONS**

<table>
<thead>
<tr>
<th>WORD</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DANGER!</strong></td>
<td>Personal death, serious injury or an explosion may occur.</td>
</tr>
<tr>
<td><strong>WARNING!</strong></td>
<td>Personal injury, fire hazard or electric shock may occur.</td>
</tr>
<tr>
<td><strong>CAUTION</strong></td>
<td>Equipment damage may occur.</td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td>Recommended for optimum use. No risk of personal injury, fire or electric shock.</td>
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</tbody>
</table>
FCC INFORMATION

• FOR CLASS B UNINTENTIONAL RADIATORS:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

CAUTION: Changes or modifications to this device, not expressly approved by Icom Inc., could void your authority to operate this device under FCC regulations.

TRADEMARKS

Icom, Icom Inc. and the Icom logo are registered trademarks of Icom Incorporated (Japan) in Japan, the United States, the United Kingdom, Germany, France, Spain, Russia, Australia, New Zealand and/or other countries.
Microsoft, Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Adobe and Adobe Reader are registered trademark of Adobe Systems Incorporated.
All other products or brands are registered trademarks or trademarks of their respective holders.

DISPOSAL

The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that in the European Union, all electrical and electronic products, batteries, and accumulators (rechargeable batteries) must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws in your area.

Icom is not responsible for the destruction or damage to the Icom transceiver, if the malfunction is because of:
• Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightnings, or other natural disasters, disturbances, riots, war, or radioactive contamination.
• The use of Icom transceiver with any equipment that is not manufactured or approved by Icom.
ABOUT THE TOUCH SCREEN

◊ Touch operation
In the Full manual or Basic manual, the touch operation is described as shown below.

Touch
If the display is touched briefly, one short beep sounds.

Touch for 1 second
If the display is touched for 1 second, one short and one long beep sound.

◊ Touch screen precautions
• The touch screen may not properly work when the LCD protection film or sheet is attached.
• Touching the screen with your finger nails, sharp topped object and so on, or touching the screen hard may damage it.
• Tablet PC’s operations such as flick, pinch in and pinch out cannot be performed on this touch screen.

◊ Touch screen maintenance
• If the touch screen becomes dusty or dirty, wipe it clean with a soft, dry cloth.
• When you wipe the touch screen, be careful not to push it too hard or scratch it with your finger nails. Otherwise you may damage the screen.

ABOUT THE SUPPLIED CD

The following items are included on the CD.

• Full manual (English)
Instructions for full operations, the same as the manual on the supplied CD.

• Basic manual (English)
Instructions for basic operations, the same as this manual.

• Basic manual
(German, Spanish, French, Italian, and other)
Instructions for basic operations in German, Spanish, French, Italian, and other languages. This manual may not be included, depending on the transceiver version.

• Schematic diagram
Includes the schematic and block diagrams.

• HAM radio Terms
A glossary of HAM radio terms.

• Adobe® Reader® Installer
Installer for Adobe® Reader®.

To read the manuals or Schematic diagram, Adobe® Reader® is required. If you have not installed it, please install the Adobe® Reader® on the CD or download it from Adobe Systems Incorporated’s website.

A PC with the following Operating System is required.
• Microsoft® Windows® 10
• Microsoft® Windows® 8.1
• Microsoft® Windows® 7
• Microsoft® Windows Vista®

Starting the CD
1. Insert the CD into the CD drive.
2. Double click “Menu.exe” on the CD.
   • Depending on the PC setting, the menu screen shown below is automatically displayed.
3. Click the desired button to open the file.
   ①To close the Menu screen, click [Quit].
ABOUT THE INSTRUCTIONS

The Full and Basic manuals are described in the following manner.

“ ” (Quotation marks):
Used to indicate icons, setting items, and screen titles displayed on the screen. The screen titles are also indicated in uppercase letters. (Example: FUNCTION screen)

[ ] (brackets):
Used to indicate keys.

Routes to the set modes and setting screens
Routes to the set mode, setting screen and the setting items are described in the following manner.

**Instruction example**

- Selecting the display background

  1. Select the “Display Type” screen.
  2. Select the desired background between A and B by rotating and then pushing (MULTI).
     - A: Black background (default)
     - B: Blue background
  3. To close the DISPLAY screen, push EXIT several times.

**Detailed instruction**

1. Push **MENU**.

   Push
   - Opens the MENU screen.

2. Touch [SET].

   MENU screen
   - Opens the SET screen.

3. Rotate **MULTI**, and then push **MULTI** to select “Display.”

   SET screen
   - Rotate
   - Push

4. Rotate **MULTI**, and then push **MULTI** to select “Display Type.”

   DISPLAY screen
   - Rotate
   - Push

   “Display Type” screen
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPORTANT</td>
<td>i</td>
</tr>
<tr>
<td>FEATURES</td>
<td>i</td>
</tr>
<tr>
<td>EXPLICIT DEFINITIONS</td>
<td>i</td>
</tr>
<tr>
<td>SUPPLIED ACCESSORIES</td>
<td>i</td>
</tr>
<tr>
<td>FCC INFORMATION</td>
<td>ii</td>
</tr>
<tr>
<td>TRADEMARKS</td>
<td>ii</td>
</tr>
<tr>
<td>DISPOSAL</td>
<td>ii</td>
</tr>
<tr>
<td>ABOUT THE TOUCH SCREEN</td>
<td>iii</td>
</tr>
<tr>
<td>◦ Touch operation</td>
<td>iii</td>
</tr>
<tr>
<td>◦ Touch screen precautions</td>
<td>iii</td>
</tr>
<tr>
<td>◦ Touch screen maintenance</td>
<td>iii</td>
</tr>
<tr>
<td>ABOUT THE SUPPLIED CD</td>
<td>iii</td>
</tr>
<tr>
<td>ABOUT THE INSTRUCTIONS</td>
<td>iv</td>
</tr>
<tr>
<td>PRECAUTIONS</td>
<td>vii</td>
</tr>
<tr>
<td><strong>1 PANEL DESCRIPTION</strong></td>
<td>1-1</td>
</tr>
<tr>
<td>Front panel</td>
<td>1-1</td>
</tr>
<tr>
<td>Rear panel</td>
<td>1-3</td>
</tr>
<tr>
<td>Touch panel display</td>
<td>1-4</td>
</tr>
<tr>
<td>◦ Multi-function menus</td>
<td>1-6</td>
</tr>
<tr>
<td>◦ MENU screen</td>
<td>1-6</td>
</tr>
<tr>
<td>◦ FUNCTION screen</td>
<td>1-6</td>
</tr>
<tr>
<td>◦ QUICK MENU</td>
<td>1-6</td>
</tr>
<tr>
<td>Keyboard entering and editing</td>
<td>1-7</td>
</tr>
<tr>
<td>◦ Entering and editing characters</td>
<td>1-7</td>
</tr>
<tr>
<td>◦ Keyboard types</td>
<td>1-7</td>
</tr>
<tr>
<td>◦ Entering and editing example</td>
<td>1-8</td>
</tr>
<tr>
<td><strong>2 INSTALLATION AND CONNECTIONS</strong></td>
<td>2-1</td>
</tr>
<tr>
<td>Selecting a location</td>
<td>2-1</td>
</tr>
<tr>
<td>Front panel connection</td>
<td>2-1</td>
</tr>
<tr>
<td>Heat dissipation</td>
<td>2-1</td>
</tr>
<tr>
<td>Grounding</td>
<td>2-1</td>
</tr>
<tr>
<td>Rear panel connection</td>
<td>2-2</td>
</tr>
<tr>
<td>Connecting an external DC power supply</td>
<td>2-3</td>
</tr>
<tr>
<td>Connecting the antenna tuner</td>
<td>2-3</td>
</tr>
<tr>
<td><strong>3 BASIC OPERATION</strong></td>
<td>3-1</td>
</tr>
<tr>
<td>When first applying power</td>
<td>3-1</td>
</tr>
<tr>
<td>Turning power ON or OFF</td>
<td>3-1</td>
</tr>
<tr>
<td>Adjusting the volume level</td>
<td>3-1</td>
</tr>
<tr>
<td>About the VFO and Memory modes</td>
<td>3-1</td>
</tr>
<tr>
<td>Using the VFO mode</td>
<td>3-1</td>
</tr>
<tr>
<td>◦ Selecting the VFO A or VFO B</td>
<td>3-1</td>
</tr>
<tr>
<td>◦ Equalizing VFO A and VFO B</td>
<td>3-1</td>
</tr>
<tr>
<td>Selecting the operating band</td>
<td>3-2</td>
</tr>
<tr>
<td>◦ Using the band stacking registers</td>
<td>3-2</td>
</tr>
<tr>
<td>Selecting the operating mode</td>
<td>3-2</td>
</tr>
<tr>
<td>Setting the frequency</td>
<td>3-3</td>
</tr>
<tr>
<td>◦ Using the Main Dial</td>
<td>3-3</td>
</tr>
<tr>
<td>◦ About the Tuning Step function</td>
<td>3-3</td>
</tr>
<tr>
<td>◦ Changing the Tuning Step</td>
<td>3-3</td>
</tr>
<tr>
<td>◦ About the 1 Hz step Fine Tuning function</td>
<td>3-3</td>
</tr>
<tr>
<td>◦ About the 1/4 Tuning function</td>
<td>3-4</td>
</tr>
<tr>
<td>◦ About the Auto Tuning Step function</td>
<td>3-4</td>
</tr>
<tr>
<td>◦ Directly entering a frequency</td>
<td>3-4</td>
</tr>
<tr>
<td>◦ Band Edge Beep</td>
<td>3-5</td>
</tr>
<tr>
<td>◦ Entering a Band Edge</td>
<td>3-6</td>
</tr>
<tr>
<td>RF gain and SQL level</td>
<td>3-9</td>
</tr>
<tr>
<td>Dial Lock function</td>
<td>3-9</td>
</tr>
<tr>
<td>Basic transmission</td>
<td>3-9</td>
</tr>
<tr>
<td>Adjusting the transmit output power</td>
<td>3-9</td>
</tr>
<tr>
<td>◦ Adjusting the transmit output power</td>
<td>3-9</td>
</tr>
<tr>
<td>Meter display</td>
<td>3-10</td>
</tr>
<tr>
<td>◦ Meter display selection</td>
<td>3-10</td>
</tr>
<tr>
<td>◦ Multi-function meter</td>
<td>3-10</td>
</tr>
<tr>
<td>Adjusting the microphone gain</td>
<td>3-10</td>
</tr>
<tr>
<td>About the 5 MHz frequency band operation (USA version only)</td>
<td>3-11</td>
</tr>
<tr>
<td><strong>4 RECEIVING AND TRANSMITTING</strong></td>
<td>4-1</td>
</tr>
<tr>
<td>Preamplifiers</td>
<td>4-1</td>
</tr>
<tr>
<td>Attenuator</td>
<td>4-1</td>
</tr>
<tr>
<td>RIT function</td>
<td>4-1</td>
</tr>
<tr>
<td>◦ RIT monitor function</td>
<td>4-1</td>
</tr>
<tr>
<td>AGC function control</td>
<td>4-2</td>
</tr>
<tr>
<td>◦ Selecting the AGC time constant</td>
<td>4-2</td>
</tr>
<tr>
<td>◦ Setting the AGC time constant</td>
<td>4-2</td>
</tr>
<tr>
<td>Using the Twin PBT</td>
<td>4-3</td>
</tr>
<tr>
<td>Selecting the IF filter</td>
<td>4-4</td>
</tr>
<tr>
<td>Selecting the IF filter shape</td>
<td>4-4</td>
</tr>
<tr>
<td>IP Plus function</td>
<td>4-5</td>
</tr>
<tr>
<td>Noise Blanker</td>
<td>4-5</td>
</tr>
<tr>
<td>◦ Adjusting the NB level and time</td>
<td>4-5</td>
</tr>
<tr>
<td>Noise Reduction</td>
<td>4-6</td>
</tr>
<tr>
<td>◦ Adjusting the Noise Reduction level</td>
<td>4-6</td>
</tr>
<tr>
<td>Notch Filter</td>
<td>4-6</td>
</tr>
<tr>
<td>◦ Auto Notch function</td>
<td>4-6</td>
</tr>
<tr>
<td>◦ Manual Notch function</td>
<td>4-6</td>
</tr>
<tr>
<td>VOX function</td>
<td>4-7</td>
</tr>
<tr>
<td>◦ Adjusting the VOX function</td>
<td>4-7</td>
</tr>
<tr>
<td>◦ Turning ON the VOX function</td>
<td>4-7</td>
</tr>
<tr>
<td>ΔTX function</td>
<td>4-8</td>
</tr>
<tr>
<td>◦ ΔTX monitor function</td>
<td>4-8</td>
</tr>
<tr>
<td>Monitor function</td>
<td>4-8</td>
</tr>
<tr>
<td>Setting the Speech Compressor</td>
<td>4-9</td>
</tr>
<tr>
<td>Split frequency operation</td>
<td>4-10</td>
</tr>
<tr>
<td>◦ Using the Quick Split function</td>
<td>4-10</td>
</tr>
<tr>
<td>◦ Using the receive and transmit frequencies set to VFO A and VFO B</td>
<td>4-10</td>
</tr>
<tr>
<td>Split Lock function</td>
<td>4-11</td>
</tr>
<tr>
<td>Setting the transmit filter width</td>
<td>4-11</td>
</tr>
<tr>
<td>Operating CW</td>
<td>4-11</td>
</tr>
<tr>
<td>◦ Setting the CW pitch control</td>
<td>4-11</td>
</tr>
<tr>
<td>◦ Setting the key speed</td>
<td>4-12</td>
</tr>
<tr>
<td>◦ About the Break-in function</td>
<td>4-12</td>
</tr>
<tr>
<td>◦ CW Auto Tuning function</td>
<td>4-13</td>
</tr>
<tr>
<td>◦ About the CW Reverse mode</td>
<td>4-13</td>
</tr>
<tr>
<td>◦ Electronic Keyer function</td>
<td>4-14</td>
</tr>
<tr>
<td>Monitoring the CW side tone</td>
<td>4-14</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS (Continued)

4 RECEIVING AND TRANSMITTING (Continued)
   Operating RTTY (FSK)................................. 4-15
   ◇ About the RTTY reverse mode ................. 4-15
   ◇ Twin Peak Filter .................................. 4-15
   ◇ Functions on the RTTY DECODE screen ... 4-16
   ◇ Setting the decoder threshold level ......... 4-16
   FM repeater operation.............................. 4-17
   ◇ Setting the repeater tone frequency ....... 4-17

5 SCOPE OPERATION ......................................... 5-1
   Spectrum scope screen............................. 5-1
   ◇ Using the Spectrum Scope ....................... 5-1
   ◇ Center mode ....................................... 5-2
   ◇ Fixed mode ........................................ 5-2
   ◇ Marker ............................................. 5-2
   ◇ Touch screen operation ....................... 5-3
   ◇ Mini scope screen ................................ 5-3
   Audio scope screen ................................ 5-3

6 USING AN SD CARD ......................................... 6-1
   About the SD card .................................... 6-1
   Saving data onto the SD card .................... 6-1
   Inserting or removing the SD card ............ 6-1
   ◇ Inserting ........................................... 6-1
   ◇ Removing .......................................... 6-1
  Unmounting an SD card ............................... 6-2
   Formatting an SD card ............................... 6-2

7 ANTENNA TUNER OPERATION .............................. 7-1
   About the internal antenna tuner ................ 7-1
   Internal antenna tuner operation ............. 7-1
   ◇ Manual tuning .................................... 7-1
   ◇ PTT Tuner start .................................. 7-1

8 SET MODE .................................................... 8-1
   Set mode description ............................... 8-1
   ◇ Entering the Set mode ......................... 8-1
   Tone Control ........................................ 8-2
   Function ............................................. 8-3
   Connectors .......................................... 8-5
   Display ............................................... 8-6
   Time Set ............................................. 8-7
   SD Card .............................................. 8-7
   Others .................................................. 8-7

9 MAINTENANCE ............................................... 9-1
   Resetting ............................................. 9-1
   ◇ Partial reset ..................................... 9-1
   ◇ All reset .......................................... 9-1

10 SPECIFICATIONS .......................................... 10-1
   ◇ General ............................................. 10-1
   ◇ Transmitter ....................................... 10-1
   ◇ Receiver .......................................... 10-2
   ◇ Antenna tuner ..................................... 10-2

11 OPTIONS .................................................... 11-1
   Options ............................................. 11-1
   Mounting the MB-118 .............................. 11-2

12 CONNECTOR INFORMATION .............................. 12-1
   ACC socket ........................................... 12-1
   ◇ OPC-599 ACC conversion cable pin assignments ........................................ 12-2
   Microphone connector ............................. 12-2
   ◇ External keypad ................................... 12-2
   KEY jack .............................................. 12-3
   EXT-SP jack ......................................... 12-3
   REMOTE jack ........................................ 12-3
   ALC jack ............................................. 12-3
   SEND jack ............................................ 12-3
   PHONES jack ......................................... 12-3
   DC power socket ................................... 12-3

INDEX .................................................................. I

ABOUT CE ...................................................... III

INSTALLATION NOTES ...................................... III
PRECAUTIONS

△ DANGER HIGH RF VOLTAGE! NEVER touch an antenna or antenna connector while transmitting. This could cause an electrical shock or burn.

△ DANGER! NEVER operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere. This could cause an explosion and death.

△ WARNING RF EXPOSURE! This device emits Radio Frequency (RF) energy. Extreme caution should be observed when operating this device. If you have any questions regarding RF exposure and safety standards please refer to the Federal Communications Commission Office of Engineering and Technology’s report on Evaluating Compliance with FCC Guidelines for Human Radio Frequency Electromagnetic Fields (OET Bulletin 65).

△ WARNING! NEVER operate the transceiver with a headset or other audio accessories at high volume levels. If you experience a ringing in your ears, reduce the volume or discontinue use.

△ WARNING! NEVER apply AC power to the [DC13.8V] socket on the transceiver rear panel. This could cause a fire or damage the transceiver.

△ WARNING! NEVER apply more than 16 V DC to the [DC13.8V] socket on the transceiver rear panel. This could cause a fire or damage the transceiver.

△ WARNING! NEVER reverse the DC power cable polarity. This could cause a fire or damage the transceiver.

△ WARNING! NEVER remove the fuse holder on the DC power cable. Excessive current caused by a short could cause a fire or damage the transceiver.

△ WARNING! NEVER let metal, wire or other objects contact the inside of the transceiver, or make incorrect contact with connectors on the rear panel. This could cause an electric shock or damage the transceiver.

△ WARNING! NEVER operate or touch the transceiver with wet hands. This could cause an electric shock or damage to the transceiver.

△ WARNING! Immediately turn OFF the transceiver power and remove the DC power cable from the transceiver if it emits an abnormal odor, sound or smoke. Contact your Icom dealer or distributor for advice.

△ WARNING! NEVER put the transceiver on an unstable place where the transceiver may suddenly move or fall. This could cause an injury or damage the transceiver.

△ WARNING! NEVER operate the transceiver during a lightning storm. It may result in an electric shock, cause a fire or damage the transceiver. Always disconnect the power source and antenna before a storm.

CAUTION: NEVER expose the transceiver to rain, snow or any liquids.

CAUTION: NEVER change the internal settings of the transceiver. This could reduce transceiver performance and/or damage to the transceiver. The transceiver warranty does not cover any problems caused by unauthorized internal adjustments.

CAUTION: NEVER install or place the transceiver in a place without adequate ventilation, or block any cooling vents on the top, rear, sides or bottom of the transceiver. Heat dissipation may be reduced and damage the transceiver.

CAUTION: NEVER use harsh solvents such as Benzine or alcohol when cleaning, as they will damage the transceiver surfaces.

CAUTION: NEVER leave the transceiver in areas with temperatures below -10°C (+14°F) or above +60°C (+140°F) for mobile operations.

CAUTION: NEVER place the transceiver in excessively dusty environments. This could damage the transceiver.

DO NOT place the transceiver against walls or putting anything on top of the transceiver. This may overheat the transceiver.

BE CAREFUL! The Main unit will become hot when operating the transceiver continuously for long periods of time.

CAUTION: If you use a linear amplifier, set the transceiver’s RF output power to less than the linear amplifier’s maximum input level, otherwise a high input could damage the linear amplifier.

CAUTION: Use only Icom supplied or optional microphones. Other manufacturer’s microphones may have different pin assignments, and could damage the connector and/or the transceiver.

NEVER leave the transceiver in an insecure place to avoid use by unauthorized persons.

Turn OFF the transceiver’s power and/or disconnect the AC power cable when you will not use the transceiver for a long period of time.

Turn OFF the transceiver’s power and/or disconnect the DC power cable when you will not use the transceiver for long period of time.

The LCD display may have cosmetic imperfections that appear as small dark or light spots. This is not a malfunction or defect, but a normal characteristic of LCD displays.
This section describes the keys, controls and dials that you use to operate the IC-7300. Refer to the pages posted beside each key, control, or dial for details.

**Front panel**

1. **POWER KEY** *(POWER)* (p. 3-1)
   Turns the transceiver ON or OFF.

2. **TRANSMIT KEY** *(TRANSMIT)* (p. 3-9)
   Toggles between transmit and receive.

3. **ANTENNA TUNER KEY** *(TUNER)* (p. 7-1)
   Turns the antenna tuner ON or OFF, or activates the tuner.

4. **VOX/BREAK-IN KEY** *(VOX/BK-IN)*
   Turns the VOX function (p. 4-7) and Break-in function (p. 4-12) ON or OFF.

5. **HEADPHONE JACK [PHONES]** (p. 2-1)
   Connects to a standard stereo headphones.

6. **MICROPHONE CONNECTOR [MIC]** (p. 2-1)
   Connects to the supplied or an optional microphone.

7. **VOLUME CONTROL** *(AF, RF, SQL)* (p. 3-1)
   Adjusts the audio output level.

8. **SD CARD SLOT [SD CARD]** (p. 6-1)
   Accepts an SD card.

9. **RF GAIN CONTROL/SQUELCH CONTROL** *(AF, RF, SQL)* (p. 3-9)
   Adjusts the RF gain and squelch threshold levels.

10. **MENU KEY** *(MENU)* (p. 1-6)
    Opens the MENU screen.

11. **FUNCTION KEY** *(FUNCTION)* (p. 1-6)
    Displays the FUNCTION screen.

12. **MINI SCOPE KEY** *(M.SCOPE)* (p. 5-1)
    Displays the Mini Scope or Spectrum Scope.

13. **QUICK KEY** *(QUICK)* (p. 1-6)
    Displays the QUICK MENU.

14. **EXIT KEY** *(EXIT)* (p. 1-6)
    Exits a setting screen or returns to the previous screen.

15. **AUTO TUNE KEY** *(AUTOTUNE)* (p. 4-13)
    Automatically tunes the operating frequency to a received CW signal.

16. **SPEECH/LOCK KEY** *(SPEECH)* (p. 3-9)
    Announces the operating frequency or receiving mode, or electronically locks MAIN DIAL.

17. **TENSION ADJUSTER**
    Adjusts the friction of MAIN DIAL.

18. **MAIN DIAL** *(MAIN DIAL)* (p. 3-3)
    Changes the operating frequency.

19. **MEMORY CHANNEL UP/DOWN KEY** *(▲/▼)*
    Changes the Memory channel.
MEMO PAD KEY
Sequentially calls up the contents in the Memo Pads, or saves the displayed contents into the Memo Pad.

VFO/MEMORY KEY
Switches between the VFO and Memory mode, or copies the memory channel contents to the VFO.

CLEAR KEY
Clears the RIT or TX shift frequency.

A/B KEY
Switches between VFO A and VFO B, or sets the selected VFO’s frequency to the other VFO.

TX KEY
 Turns the TX function ON or OFF.

RIT KEY
Turns the Receiver Incremental Tuning (RIT) function ON or OFF.

SPLIT KEY
Turns the Split function ON or OFF.

MULTI-FUNCTION CONTROL
Displays the Multi-function menu for various adjustments, or selects a desired item.

TRANSMIT FREQUENCY CHECK KEY
Enables you to monitor the transmit frequency while holding it down in the Split mode.

TX/RX INDICATOR
Lights red while transmitting and lights green while receiving.

NOISE REDUCTION KEY
 Turns the Noise Reduction function ON or OFF.

NOTCH KEY
Turns the Notch filter ON or OFF.

TWIN PASSBAND TUNING CONTROL
Adjusts the IF filter’s passband width.

PREAMP/ATTENUATOR KEY
Turns ON or Attenuator ON or OFF.

NOISE BLANKER KEY
Turns the Noise Blanker ON or OFF.
Rear panel

1 DC POWER SOCKET [DC 13.8 V] (p. 2-2)
Accepts 13.8 V DC through the DC power cable.

2 GROUND TERMINAL [GND] (p. 2-1)
Connects to ground to prevent electrical shocks, TVI, BCI and other problems.

3 ANTENNA CONNECTOR [ANT] (p. 2-2)
Connects to a 50 Ω PL-259 coax connector.

4 SOCKET [ACC] (p. 2-2)
Connects to devices to control an external unit or to control the transceiver.

5 USB PORT (B TYPE) [USB] (p. 2-2)
Connects to a PC.

6 CI-V REMOTE CONTROL JACK [REMOTE] (p. 2-2)
- Connects to a PC or other transceiver for external control.

7 EXTERNAL SPEAKER JACK [EXT-SP] (p. 2-2)
Accepts a 4~8 Ω external speaker.

8 KEY JACK [KEY] (p. 2-2)
Connects to a straight key, external electronic keyer, or a paddle with 6.35 mm (1/4") stereo plug.

9 SEND CONTROL JACK [SEND] (p. 2-2)
Connects to control transmit with non-Icom external units.

10 ALC INPUT JACK [ALC] (p. 2-2)
Connects to the ALC output jack of a non-Icom linear amplifier.

11 TUNER CONTROL SOCKET [TUNER] (p. 2-2)
Accepts the control cable from an optional AH-4 or AH-740 AUTOMATIC ANTENNA TUNER.

12 COOLING FAN
Cools the PA unit when necessary.
This section describes the icons, screens, dialogs, readouts and so on that are displayed on the IC-7300 screen. Refer to the pages posted beside each item for details.

**Touch panel display**

1. **TUNE ICON** (p. 7-1)
   Appears while tuning the antenna.

2. **MODE INDICATOR** RTTY-R (p. 3-2)
   Displays the selected operating mode.

3. **PASSBAND WIDTH INDICATOR** (p. 4-3)
   Graphically displays the passband width for twin PBT operation and the center frequency for IF shift operation.

4. **TONE INDICATOR** TONE (p. 4-17)
   Displays the selected tone type in the tone operation mode.

5. **IF FILTER INDICATOR** FIL2 (p. 4-4)
   Displays the selected IF filter.

6. **QUICK TUNING ICON**
   Appears when the Quick Tuning Step function is ON.

7. **IP PLUS ICON** (p. 4-5)
   Appears when the IP Plus function is ON.

8. **MEMORY NAME READOUT** (p. 1-8)
   Displays the memory name if entered.

9. **M1~M8/T1~T8/OVF ICON** M3
   Displays “M1”~“M8” while “External Keypad” on the CONNECTORS screen is set to ON and using the Memory Keyer function (p. 4-14). Displays “T1”~“T8” while using the Voice TX memory. Displays “OVF” when an excessively strong signal is received.

10. **VOICE RECORDER ICON**
    Appears while recording.

11. **SD CARD ICON** (p. 6-1)
    Appears when an SD card is inserted, or blinks while accessing the SD card.

12. **CLOCK READOUT** 23:00
    Displays the current local time. Touch the readout to display both the current local time and UTC time.

13. **SPLIT ICON** SPLIT (p. 4-10)
    Appears when the Split function is ON.

14. **VFO/MEMORY ICON** MEMO (p. 3-1)
    “VFO A” or “VFO B” appears when the VFO mode is selected, and “MEMO” appears when the Memory mode is selected.

15. **MEMORY CHANNEL READOUT**
    Displays the selected memory channel number.
Touch panel (Continued)

- **RIT ICON** \(\text{RIT}\) (p. 4-1)
  Appears while the RIT function is ON.

- **TX ICON** \(\text{TX}\) (p. 4-8)
  Appears while the \(\text{TX}\) function is ON.

- **SHIFT FREQUENCY READOUT**
  Displays the shift frequency of the RIT (p. 4-1) or \(\text{TX}\) (p. 4-8) functions, while the functions are ON.

- **SPECTRUM SCOPE SCREEN** (p. 5-1)
  Displayed while using the Spectrum Scope.

- **FUNCTION DISPLAY**
  Displays the operating parameters, modes, frequencies and indicators, depending on your selections.

- **MULTI-FUNCTION METER** (p. 3-10)
  Displays various strengths and levels, depending on the function you select.

- **RF GAIN ICON** \(\text{REC}\) (p. 3-9)
  Appears when \(\text{REC}\) (outer) is set to the counterclockwise from the 11 o’clock position. The icon indicates that the RF gain is reduced.

- **BK-IN/F-BKIN/VOX INDICATOR** \(\text{F-BKIN}\) (p. 4-12)
  Appears while the Semi Break-in, Full Break-in or VOX function is ON.

- **FREQUENCY READOUT** (p. 3-3)
  Displays the operating frequency.

- **TX STATUS INDICATOR** \(\text{TX}\) (p. 3-9)
  Displays the transmit status of the displayed frequency.
  - \(\text{TX}\) appears while transmitting.
  - \(\text{TX}\) appears when the selected frequency is outside of the band edge frequency range.
  - \(\text{TX}\) appears when transmission is inhibited (p. 3-10)
Touch panel (Continued)

◊ Multi-function menus

- Open the Multi-function menu by pushing MULT (Multi-function control).
- Open special menus by holding down VOX/BK-IN, NB, NR, or NOTCH for 1 second.
- While the Multi-function menu is opened, touch the desired item and rotate (MULT) to set the desired value.

Multi-function menu items

<table>
<thead>
<tr>
<th>SSB</th>
<th>SSB-D</th>
<th>CW</th>
<th>RTTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF POWER</td>
<td>RF POWER</td>
<td>RF POWER</td>
<td>RF POWER</td>
</tr>
<tr>
<td>MIC GAIN</td>
<td>MIC GAIN</td>
<td>KEY SPEED</td>
<td>TPF</td>
</tr>
<tr>
<td>COMP</td>
<td>MONITOR</td>
<td>CW PITCH</td>
<td>MONITOR</td>
</tr>
<tr>
<td>MONITOR</td>
<td>MONITOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FM</td>
<td>AM</td>
<td>NB</td>
<td>NR</td>
</tr>
<tr>
<td>RF POWER</td>
<td>RF POWER</td>
<td>LEVEL</td>
<td>LEVEL</td>
</tr>
<tr>
<td>MIC GAIN</td>
<td>MIC GAIN</td>
<td>DEPTH</td>
<td>WIDTH</td>
</tr>
<tr>
<td>MONITOR</td>
<td>MONITOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOTCH</td>
<td>VOX</td>
<td>BK-IN</td>
<td></td>
</tr>
<tr>
<td>POSITION</td>
<td>GAIN</td>
<td>DELAY</td>
<td></td>
</tr>
<tr>
<td>WIDTH</td>
<td>ANTI VOX</td>
<td>DELAY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VOICE DELAY</td>
<td>SHORT</td>
<td></td>
</tr>
</tbody>
</table>

* Touch the edge to turn the function ON or OFF, or adjust.

◊ FUNCTION screen

- Open the FUNCTION screen by pushing FUNCTION. 
  ① To close the FUNCTION screen, push EXIT.

FUNCTION screen list

<table>
<thead>
<tr>
<th>P.AMP/ATT</th>
<th>AGC</th>
<th>NOTCH</th>
<th>NB</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>FAST</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>P.AMP1</td>
<td>MID</td>
<td>AN</td>
<td>ON</td>
</tr>
<tr>
<td>P.AMP2</td>
<td>SLOW</td>
<td>MN</td>
<td></td>
</tr>
<tr>
<td>ATT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NR</td>
<td>IP+</td>
<td>VOX</td>
<td>BKIN</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>BKin</td>
</tr>
<tr>
<td>COMP</td>
<td>TONE</td>
<td>TBW</td>
<td>1/4</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>WIDE</td>
<td>OFF</td>
</tr>
<tr>
<td>ON</td>
<td>TONE</td>
<td>MID</td>
<td>ON</td>
</tr>
<tr>
<td>MONI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 Touch for 1 second to select the function. 
*2 Touch for 1 second to open its function menu.

◊ QUICK MENU

- Open the QUICK MENU by pushing QUICK.
Keyboard entering and editing

Entering and editing characters
You can enter and edit the items in the following table.

<table>
<thead>
<tr>
<th>Category</th>
<th>Screen</th>
<th>Selectable characters</th>
<th>Total characters</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENU</td>
<td>MY CALL</td>
<td>A to Z, 0 to 9, (space), / @ - .</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>MEMORY</td>
<td>MEMORY NAME</td>
<td>A to Z, a to z, 0 to 9, (space), @ % &amp; # + - [ ] ( ) ; : ^ ! . ,</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>FUNCTION</td>
<td>KEYER MEMORY</td>
<td>A to Z, 0 to 9, (space), / ? ^ . @</td>
<td>70</td>
<td>&quot;*&quot; (asterisk) has its unique use.</td>
</tr>
<tr>
<td></td>
<td>RTTY MEMORY</td>
<td>A to Z, 0 to 9, (space), ! $ &amp; ? * - / ; :</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VOICE TX RECORD</td>
<td>A to Z, a to z, 0 to 9, (space), _ ! * $ % &amp; ' ( ) + , - / ; : ; &lt;= &gt; ? @ [ ] ^ _ { } ~</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD Card</td>
<td>FILE NAME</td>
<td>15</td>
<td>Illegal characters: / ; ; * &lt; &gt;</td>
</tr>
</tbody>
</table>

Keyboard types
You can select the Full Keyboard or Tenkey in "Keyboard Type" on the FUNCTION screen. (p. 8-4)

MENU » SET > Function > Keyboard Type

You can also temporarily switch in the QUICK MENU by pushing QUICK.

Entering and editing

Moves the cursor forward
Clears the entered character
Selects the character type
Saves the entry
Cancels entry and returns to the previous screen

Enters an uppercase letter
Selects alphabet mode or number mode
Enters a space

Alphabet mode
Number mode
Symbol mode
Keypad entering and editing (Continued)

◇ Entering and editing example
Entering “DX spot 1” in the Memory channel 2

1. Open the MEMORY screen.

2. Touch the memory channel 2 for 1 second.

   - Opens the QUICK MENU.

3. Select “Edit Name.”

4. Touch [1], and then touch [D].

5. Touch [1] again, and then touch [X].

6. Touch [SPACE].

   - Enters a space.

7. Touch [s], [p], [o], and then [t].

8. Touch [SPACE].

   - Enters a space.

9. Touch [ab].

   - Opens the entry CHARACTER TYPE screen.

10. Touch [12].

11. Touch [1].

12. Touch [ENT] to save the entry.

   - Returns to the previous screen.
Selecting a location

Select a location for the transceiver that allows adequate air circulation, free from extreme heat, cold or vibrations, and other electromagnetic sources.

The transceiver has a stand for desktop use.

CAUTION: NEVER carry the transceiver by holding the stand, dials, controls and so on. This may damage them.

Heat dissipation

- **DO NOT** place the transceiver against walls or put anything on top of the transceiver. This may block airflow and overheat the transceiver.
- **NEVER** install the transceiver in a place without adequate ventilation. Heat dissipation may be reduced, and the transceiver may be damaged.
- **DO NOT** touch the transceiver after transmitting continuously for long periods of time. The transceiver may become hot.

Grounding

To prevent electrical shock, television interference (TVI), broadcast interference (BCI) and other problems, ground the transceiver using the ground terminal [GND] on the rear panel.

For best results, connect a heavy gauge wire or strap to a long ground rod. Make the distance between the [GND] terminal and ground as short as possible.

WARNING! NEVER connect the [GND] terminal to a gas or electric pipe, since the connection could cause an explosion or electric shock.

Front panel connection

**[MIC] (Microphone) connector**

- SM-50 (Option)
- SM-30 (Option)
- HM-219 (Supplied)

**Using an External Keypad**

You can control the CW memory keyer, Voice memory or RTTY memory keyer transmission from an external keypad by connecting the control circuit to the [MIC] connector. Set the “External Keypad” to ON on the CONNECTORS screen to use the external keypad. (p. 8-5)

**[PHONES] Headphones**

Accepts headphones with 8~16 Ω impedance.
- Outputs 5 mW into an 8 Ω load.
- The volume level may differ, depending on the headphones.
**Rear panel connection**

**[DC 13.8 V] DC power supply**
(p. 12-3)

Use the optional PS-126 or a power supply with 13.8 V DC output and a current capacity of at least 21 A.

**[ALC]/[SEND] jack**
Connect with an RCA plug

[ALC] jack connects to the ALC output jack of a non-Icom linear amplifier.

[SEND] jack is used to control an external non-Icom linear amplifier.

**[KEY] (CW key) jack**
(p. 12-3)

Paddle

(6.35 mm: 1/4 in (d))
You can use a straight or bug key when the internal electronic keyer is OFF.

**[GND] (Ground)**

Grounding prevents electrical shock, TVI and other problems.

**[ANT] (antenna) connector**

Connect a 50 Ω antenna for the HF, 50/70 MHz frequency bands.

**[TUNER] control socket**
(p. 2-3)

Connect the control cable from an optional AH-4 or AH-740 (Automatic antenna tuner).

The AH-2b is connected to the AH-4.

**[REMOTE] jack**
(p. 12-3)

(3.5 mm: 1/8 in (d))
Remotely controls the transceiver, using the optional RS-BA1, or CI-V commands.

**[USB] port**

- Remotely controls the transceiver using CI-V commands.
- Sends the received audio to the PC
- Inputs modulation
- Sends the decoded RTTY outputs to the PC.
- Remote control operation using the optional RS-BA1.

(Icom does not guarantee the performance of the PC, network device or network settings)

**[ACC] (accessory) socket**
(p. 12-1)

Connects control lines for external devices such as a TNC or a PC.
Refer to the external device's instruction manual for connection.
Connecting an external DC power supply

Confirm that the transceiver is OFF before connecting the DC power cable.

① We recommend using Icom’s optional PS-126 (DC 13.8 V/25 A) power supply.
② When connecting a non-Icom DC power cable, the transceiver needs:
   - DC 13.8 V (Capacity: At least 21 Amps)
   - a power supply with an over current protective line and low voltage fluctuation or ripple.

CAUTION: DO NOT touch the cooling fan on the rear panel of the transceiver after transmitting continuously for long periods of time. The transceiver can become extremely hot.

Connecting the antenna tuner

The AH-4 AUTOMATIC ANTENNA TUNER matches the IC-7300 to the optional AH-2b or a long wire antenna more than 7 m/23 ft long (between 3.5 MHz and 50 MHz).

NOTE: Before connecting, be sure to turn OFF the transceiver power.

See the AH-4 instruction manual for installation and connection details.
When first applying power

Before turning ON your transceiver for the first time, make sure all of the following are correctly connected.
• DC power cable
• Antenna
• Grounding wire
• Microphone*
*Different devices may be used, depending on the operating mode.

If all listed above are correctly connected, set AF RF/SQL (inner/outer) to the positions described below.

12 o’clock position (outer)
Maximum counterclockwise (inner)

TIP: When you turn OFF the transceiver, it memorizes the current settings. Therefore, when you turn ON the transceiver again, the it restarts with the same settings.

About the VFO and Memory modes

\( \text{VFO mode} \)
You can set the desired frequency by rotating MAIN DIAL.

\( \text{Memory mode} \)
You can enter contents into the desired channel in the MEMORY list.

Selecting the VFO mode or Memory mode

Push V/M to select the VFO or Memory mode.

Using the VFO mode

The IC-7300 has 2 Variable Frequency Oscillators (VFO), “A” and “B.” Having 2 VFOs is convenient to quickly select 2 frequencies, or for split frequency operation (p. 4-10). You can use either of the VFOs to operate on a frequency and mode.

Selecting VFO A or VFO B

Push A/B to select the VFO A or VFO B.

Equalizing VFO A and VFO B

You can set the displayed VFO’s frequency to the VFO that is not displayed. Hold down A/B until 2 short beeps sound.

Turning power ON or OFF

• To turn ON the transceiver, push POWER.
• To turn OFF the transceiver, hold down POWER for 2 seconds until “POWER OFF...” is displayed.

Adjusting the volume level

Rotate AF RF/SQL (inner) to adjust the volume level.
Selecting the operating band

Do the following steps to change the operating band. Also, the band stacking register provides 3 memories for each band key to store frequencies and operating modes. This function is convenient to quickly recall previously operated frequencies and modes on the selected band.

♦ Using the band stacking registers

Follow the steps below to enter a register on the selected band. (Example: Memorizing 21 MHz)

1. Touch the MHz digits. (Example: 14)
   • Opens the BAND STACKING REGISTER screen.

2. Touch a band key. (Example: [21])
   • Displays a 21 MHz frequency.

TIP: Selecting a different Register
- Touching the band key for 1 second changes between the 3 Registers.
- Touch \( \rightarrow \) to return to the previous screen.

3. Set the frequency and the operating mode. (Example: 21.30000 MHz in the USB mode)

4. Touch the MHz digits again.
   - The frequency and operating mode set in step 3 is memorized in the top Register.

5. By repeating the steps above, the Register that a new frequency and operating mode are set in is memorized.

Selecting the operating mode

You can select between the SSB, SSB data, CW, CW reverse, RTTY, RTTY reverse, AM, AM data, FM and FM data modes.

1. Touch the mode icon (example: USB).

2. In the MODE screen, touch the desired mode key. (Example: CW).
   - In the SSB, AM or FM modes, the [DATA] key is displayed.

Selecting the Data mode

You can operate RTTY in the data mode using AFSK (Audio Frequency Shift Keying).

- When a data mode is selected, you can mute the input from the microphone. (p. 3-2)

(Example: selecting the USB-D mode)

1. While the USB mode is selected, touch the mode icon.
   • Opens the MODE screen.

2. Touch [DATA].

   - The USB-D mode is selected.
Setting the frequency

♢ Using the Main Dial
1. Select the desired operating band. (Example: 21 MHz)

BAND STACKING REGISTER screen

2. Rotate MAIN DIAL.

①If you cannot change the frequency, make sure the Dial Lock function is turned OFF. (p. 3-9)
②TX is displayed when you set an amateur radio frequency, and TX is displayed when you set a frequency outside the Ham band, or outside your set Band Edges.

♢ About the Tuning Step function
You can set the MAIN DIAL’s tuning step for each operating mode. The following steps are set as default.
• SSB/CW/RTTY (TS OFF): 10 Hz
• AM (TS ON): 1 kHz
• FM (TS ON): 10 kHz

Touch the kHz digits to turn the Tuning Step function ON or OFF.
①The Tuning Step function’s icon “▼” is displayed above the 1 kHz digit.

♢ Changing the Tuning Step
When the Tuning Step function is ON, you can change the tuning steps for each operating mode.

1. Select the desired operating mode. (p. 3-2)
   (Example: USB)
2. Touch the kHz digit for 1 second.
   • The TS (SSB) screen is displayed.

3. Touch the desired tuning step.
   (Example: 0.1 k)
   • The tuning step is set and returns to the previous screen.

♢ About the 1 Hz step Fine Tuning function
You can use the minimum tuning step of 1 Hz for fine tuning in the SSB, CW and RTTY modes.

Touch the Hz digits for 1 second to turn the Fine Tuning function ON or OFF.
①The 1 Hz digit is displayed.

①When using the [UP]/[DN] keys on the microphone, the frequency changes in 50 Hz steps with the Fine Tuning function ON or OFF.
Setting the frequency (Continued)

◊ About the 1/4 Tuning function  
 Mode: SSB-D/CW/RTTY  
With the Tuning Function OFF, turn ON the 1/4 Tuning function to reduce the tuning speed to 1/4 of the normal speed, for finer tuning.

1. Push FUNCTION.  
   • Opens the FUNCTION screen.
2. Touch [1/4].

◊ Directly entering a frequency  
You can set the frequency without rotating MAIN DIAL by directly entering on the keypad.

Entering the operating frequency

1. Touch the MHz digits.  
   (Example: 14)

   ![FUNCTION screen]

2. Touch [F-INP].

   ![BAND STACKING REGISTER screen]

3. Start entry with the MHz digits.  
   ① To clear the entry, touch [CE].  
   ② To clear the entry and return to the previous screen, push EXIT.

4. Touch [ENT] to set the entered frequency.  
   • Closes the F-INP screen.
   ① If you touch [ENT] when the digits under 100 kHz are not entered, “0” will be automatically entered into the digits that are blank.

Entry examples

- 14.025 MHz: [1], [4], [−], [0], [2], [5], [ENT]
- 18.0725 MHz: [1], [8], [−], [0], [7], [2], [5], [ENT]
- 730 kHz: [0], [−], [7], [3], [ENT]
- 5.100 MHz: [5], [−], [1], [ENT]
- 7.000 MHz: [7], [ENT]
- Changing from 21.280 MHz to 21.245 MHz: [−], [2], [4], [5], [ENT]
Setting the frequency (Continued)

Entering the Split Frequency Offset

1. Touch the MHz digits. (Example: 14)

   • Opens the BAND STACKING REGISTER screen.

2. Touch [F-INP].

   BAND STACKING REGISTER screen
   • Opens the F-INP screen.

3. Enter the Split Frequency Offset.
   ①If you want the minus shift direction, touch [−].
   ②Enter the offset between −9.999 MHz and +9.999 MHz (1 kHz steps).

4. To save the entry, touch [SPLIT] or [−SPLIT].
   • Closes the F-INP screen.

Entry examples
• 10 kHz: [1], [0], [SPLIT]
• −1.025 MHz: [−], [1], [0], [2], [5], [−SPLIT]
①After entering, the Split function is automatically turned ON.

Entering a Memory channel

1. Touch V/M to select the Memory mode.

   VFO mode
   (Example: VFO A)

   Memory mode
   (Example: Memory channel 1)

2. Touch the MHz digits. (Example: 14)

   • Opens the BAND STACKING REGISTER screen.

3. Touch [F-INP].

   BAND STACKING REGISTER screen
   • Opens the F-INP screen.

4. Enter a Memory channel number between 1 and 99. (Memory channel 5)
   ①If you want to set the Program Channel number (P1 or P2), enter “100” for P1, and “101” for P2.

5. Touch [MEMO] to select the entered channel.
   • Closes the F-INP screen.

Diamond Band Edge Beep

You will hear a Band Edge Beep and TX will be displayed when you tune into or out of an amateur band’s frequency range.
①You can change the Band Edge Beep settings in the following menu.

MENU » SET > Function > Band Edge Beep
Entering a Band Edge
When "ON (User)" or "ON (User) & TX Limit" is selected on the "Band Edge Beep" screen, you can enter a total of 30 band edge frequency pairs.

1. Initially, all Ham band frequencies are entered into the first 11 band edges. Therefore, you must first edit or delete them to enter a new band edge.
2. You cannot enter an overlapping frequency, or a frequency that is out of the preset Ham band frequencies.

1. Open the "Band Edge Beep" screen.
2. Select "ON (User)" or "ON (User) & TX Limit."
3. If you select "ON (User) & TX Limit," you can limit transmission to within the entered frequency range.
4. Touch [ENT] to save the edited band edge frequency.
5. Edit the upper band edge frequency.
6. Touch [ENT] to save the edited upper band edge frequency.

Editing a Band Edge
You can edit a band edge entered as a default or when entering a new band edge.

1. On the FUNCTION set screen, select “User Band Edge.”
2. Touch the band edge you want to edit for 1 second.
3. Edit the lower band edge frequency.
4. Touch [ENT] to save the edited lower band edge frequency.
5. Touch [ENT] to save the edited upper band edge frequency.

TIP:
- You can also edit the frequency by rotating or 
- Each band edge must be higher in frequency than the ones above it. If you try to enter a lower frequency than the edge above, the lower frequency edge will be cleared when you push [ENT].

Entry examples
- 14.025 MHz: [1], [4], [•], [0], [2], [5], [ENT]
- 18.0725 MHz: [1], [8], [•], [0], [7], [2], [5], [ENT]
- 5.100 MHz: [5], [•], [1], [ENT]
- 7.000 MHz: [7], [ENT]
- Changing from 21.280 MHz to 21.245 MHz: [•], [2], [4], [5], [ENT]
Setting the frequency

Entering a Band Edge (Continued)

Deleting a Band Edge
To enter a new band edge, first you must delete a preset band edge.
①Initially, all Ham band frequencies are entered into the first 11 band edges. Therefore, you must first edit or delete them to enter a new band edge.
②You cannot enter an overlapping frequency, or a frequency that is out of the preset Ham band frequencies.

1. On the FUNCTION set screen, select “User Band Edge.”
2. Touch the desired band edge to delete for 1 second.
   (Example: 1: 1.800.000 – 1.999.999 MHz)
3. Touch “Delete.”
   • The selected band edge is deleted and returns to the previous screen.

Entering a new Band Edge
After you delete or edit the preset band edges, you can enter a new band edge.

1. Open the “User Band Edge” screen.
2. Select a blank band.
   (Example: 10)
3. Enter the lower band edge frequency.
   (Example: 51.15)
4. Touch [ENT] to save the entered lower band edge frequency.
5. Enter the upper band edge frequency.
   (Example: .75)
6. Touch [ENT] to save the entered upper band edge frequency.
   • The entered band edge is saved and returns to the previous screen.
Setting the frequency

Entering a Band Edge (Continued)

Inserting a Band Edge

After you delete or edit the preset band edges, follow the steps below to insert a band edge.
1. Initially, all Ham band frequencies are entered into the first 11 band edges. Therefore, you must first edit or delete them to enter a new band edge.
2. You cannot enter an overlapping frequency, or a frequency that is out of the preset Ham band frequencies.

1. Open the “User Band Edge” screen.
2. Touch the band edge you want to insert a new band edge above for 1 second.
   (Example: 1: 3.500.000 – 3.999.999 MHz)
3. Touch “Insert.”
4. Enter the lower band edge frequency.
   (Example: 1.85)
5. Touch [ENT] to save the entered lower band edge frequency.
6. Enter the upper band edge frequency.
   (Example: .95)
7. Touch [ENT] to save the entered upper band edge frequency.
   • The entered band edge is saved and returns to the previous screen.

Resetting all band edges to presets

The steps below will reset all the band edges to their initial settings. All entered settings will be deleted.

1. Open the “User Band Edge” screen.
2. Touch any band edge for 1 second.
3. Touch “Default.”
   • Displays “Reset All Edges?”
4. Touch [YES].
   • All the band edges reset to the initial settings.
RF gain and SQL level

Rotate \( \text{RF/SQL} \) (outer) to adjust the RF gain and SQL level.

By default, rotating to left (when set to the 12 o’clock position) adjusts the RF gain, and rotating to right adjusts the squelch level as described below.

- **RF gain**
  Adjust the RF gain to decrease the noise received from a nearby strong station.
  - Rotate counterclockwise to reduce the RF gain, which reduces the receive sensitivity. “RFG” appears when \( \text{RF/SQL} \) is set to the counterclockwise from the 11 o’clock position. “RFG” indicates that the RF gain is reduced.
  - If a strong signal is received and “OVF” (Overflow) appears, reduce the RF gain until “OVF” disappears.

- **SQL level**
  There are 2 types of SQL levels, depending on the operating mode.
  - **Noise squelch**
    Rotate the \( \text{RF/SQL} \) (outer) until the noise just disappears and the TX/RX indicator goes OFF.
  - **S-meter squelch**
    The S-meter squelch disables the audio output from the speaker or headphones when the received signal is weaker than the specified S-meter squelch level.
    Rotate the \( \text{RF/SQL} \) clockwise from the 12 o’clock position to increase the S-meter threshold level.

You can change the \( \text{RF/SQL} \) (outer) control type in “RF/SQL Control.” (p. 8-3)

MENU \( \rightarrow \) SET > Function > RF/SQL Control

Basic transmission

   - The TX/RX indicator lights red and \( \text{T} \) \( \text{X} \) is displayed while transmitting.
2. Push [TRANSMIT] or release [PTT].
   - Returns to receive.

Adjusting the transmit output power

Before transmitting, monitor your selected operating frequency to make sure you do not cause interference to other stations on the same frequency. It is good amateur practice to listen first, and then, even if nothing is heard, ask if the frequency in use once or twice, before you start operating.

Adjusting the transmit output power

1. Set the operating mode to SSB, CW, RTTY or FM. (p. 3-2)
   - (Example: USB)
2. Touch the meter to display the Po meter. (p. 3-10)
3. Open the Multi-function menu.

4. Push [TRANSMIT] or hold down [PTT].
   - The Po meter level changes according to your voice level in the SSB mode.
   - The TX/RX indicator lights red and \( \text{T} \) \( \text{X} \) is displayed.

   You can change the \( \text{RF/SQL} \) (outer) control type in “RF/SQL Control.” (p. 8-3)

MENU \( \rightarrow \) SET > Function > RF/SQL Control

5. Touch “RF POWER.”

6. Adjust the transmit output power to between 0 and 100%.

Po meter
   - The Po meter displays the RF output power in a percentage. It becomes the S-meter while receiving.

7. Push [TRANSMIT] or release [PTT].
   - Returns to receive.

Dial Lock function

The Dial Lock function prevents frequency changes caused by accidently moving MAIN DIAL.

- This function electronically locks the dial.

Hold down \( \text{DIAL} \) for 1 second to turn the Dial Lock function ON or OFF.
   - “D” is displayed while the function is ON.
   - During Split Frequency operation, the Split Lock function may be turned ON. (p. 8-4)

MENU \( \rightarrow \) SET > Function > Lock Function
**Adjusting the microphone gain**

Adjust the microphone gain as described below.

1. Set the operating mode to SSB, AM or FM. (p. 3-2)
2. Push [MULTI] to display the Multi-function menu.
3. Touch “MIC GAIN.”

![Multi-function meter](image)

   - The TX/RX indicator lights red and **TX** is displayed.

5. Rotate [MULTI] to adjust the microphone gain.

   **Information**
   - In the SSB mode, touch the TX meter to select the ALC meter and adjust until the meter reading swings between 30 to 50% of the ALC scale.
   - Hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at your normal voice level.
   - In the AM or FM mode, check the audio clarity with another station, or use the Monitor function (p. 4-8).

6. Push [TRANSMIT] or release [PTT].
   - Returns to receive

---

**Meter display**

**Meter display selection**

You can display one of the 6 different transmit parameters (Po, SWR, ALC, COMP, VD and ID) for your convenience.

Touch the parameter to display one of the meters.

**Multi-function meter**

You can display all the parameters simultaneously.

- The TEMP meter is also displayed on the Multi-function meter.

Hold down the parameter for 1 second to display the Multi-function meter.

---

**ALC meter**

**ALC zone**

**Multi-function meter**

Displays the drain voltage of the final amplifier MOS-FETs.

Displays the temperature of the final amplifier MOS-FETs.

- **S**: Displays the receiving signal strength level.
- **Po**: Displays the relative RF output power.
- **SWR**: Displays the SWR of the antenna at the frequency.
- **ALC**: Displays the ALC level. When the meter movement shows the input signal level exceeds the allowed level, the ALC limits the RF power. In such cases, decrease the microphone gain level.
- **COMP**: Displays the compression level when the speech compressor is used.
- **VD**: Displays the drain voltage of the final amplifier MOS-FETs.
- **ID**: Displays the drain current of the final amplifier MOS-FETs.
- **TEMP**: Displays the temperature of the final amplifier MOS-FETs.
About the 5 MHz frequency band operation (USA version only)

Operation on the 5 MHz frequency band is allowed on 5 discrete frequencies and you must adhere to the following:

- The USB, USB Data, PSK, and CW modes.
- Maximum of 100 watts ERP (Effective Radiated Power)
- Maximum 2.8 kHz bandwidth

It is your responsibility to set all controls so that transmission in this frequency band meets the stringent conditions under which amateur operations may use these frequencies.

**TIP:** We recommend that you save these frequencies, modes and filter settings into memory channels, for easy recall.

**NOTE:** To assist you in operating within the rules specified by the FCC, transmission is illegal on any frequencies other than the five shown in the tables below.

For the **USB and USB data modes:**
The FCC specifies center frequencies on the 5 MHz frequency band. However, the transceiver displays carrier frequency. Therefore, tune the transceiver to 1.5 kHz below the specified FCC channel center frequency.

<table>
<thead>
<tr>
<th>Transceiver displayed frequency</th>
<th>FCC channel center frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.33050 MHz</td>
<td>5.33200 MHz</td>
</tr>
<tr>
<td>5.34650 MHz</td>
<td>5.34800 MHz</td>
</tr>
<tr>
<td>5.35700 MHz</td>
<td>5.35850 MHz</td>
</tr>
<tr>
<td>5.37150 MHz</td>
<td>5.37300 MHz</td>
</tr>
<tr>
<td>5.40350 MHz</td>
<td>5.40500 MHz</td>
</tr>
</tbody>
</table>

For the **CW mode:**
The transceiver displays the center frequency. Therefore, tune the transceiver to the specified FCC channel frequency when you operate in the CW mode.

<table>
<thead>
<tr>
<th>Transceiver displayed frequency</th>
<th>FCC channel center frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.33200 MHz</td>
<td>5.33200 MHz</td>
</tr>
<tr>
<td>5.34800 MHz</td>
<td>5.34800 MHz</td>
</tr>
<tr>
<td>5.35850 MHz</td>
<td>5.35850 MHz</td>
</tr>
<tr>
<td>5.37300 MHz</td>
<td>5.37300 MHz</td>
</tr>
<tr>
<td>5.40500 MHz</td>
<td>5.40500 MHz</td>
</tr>
</tbody>
</table>
### Preamplifiers

The preamps amplify received signals in the receiver front end to improve the signal-to-noise ratio and sensitivity. A preamp is used when receiving weak signals.

- Each band memorizes the Preamplifier setting.

Push **P.AMP** (P.AMP).
- Each push changes between “P.AMP1,” “P.AMP2,” and OFF (no icon).

- **P.AMP1** Wide dynamic range preamplifier. It is most effective for the HF low bands.
- **P.AMP2** High-gain preamplifier. It is most effective for the higher bands.

**NOTE:** When you use the preamp while receiving strong signals, the receiving signal may be distorted. In such case, turn OFF the preamp.

### Attenuator

The Attenuator prevents a desired signal from becoming distorted when a very strong signal is near the frequency, or when a very strong electric field, such as from a broadcasting station, is near your location.

- Each band memorizes the Attenuator setting.

Hold down **P.AMP** (ATT) for 1 second to turn ON the Attenuator.
- Pushing **P.AMP** turns OFF the Attenuator (no icon).

### RIT function

The RIT (Receive Increment Tuning) function compensates for differences in frequencies of other stations. The function shifts the receive frequency up to ±9.99 without shifting the transmit frequency.

1. Push **RIT**.
   - The RIT function turns ON.
   - While using the Fine Tuning function (p. 3-3), the RIT frequency is displayed in 4 digits, instead of 3.
   - Pushing **RIT** again turns OFF the RIT function.

2. Set the RIT frequency to match the receiving station’s frequency.

- You can reset the RIT frequency to “0.00” by holding down **CLEAR** for 1 second.
- You can add the frequency shift to the operating frequency by holding down **RIT** for 1 second.

3. After communicating, push **RIT** to turn the RIT function OFF.

#### RIT monitor function

When the RIT function is ON, you can directly monitor the operating frequency by holding down **XFC**.

- While monitoring, the RIT function is temporarily OFF.
- While monitoring, the settings for the Noise Reduction, Notch filter and Twin PBT are temporarily OFF.
AGC function control

The AGC (Automatic Gain Control) controls receiver gain to produce a constant audio output level, even when the received signal strength varies greatly.

Setting the AGC time constant

You can set the preset AGC time constant to the desired value.

1. Select the operating mode.
   (Example: SSB)
2. Push FUNCTION.
   • Opens the FUNCTION screen.
3. Touch [AGC] for 1 second.
   • Opens the AGC (SSB) screen.
4. Touch either FAST, MID or SLOW to select the desired AGC to adjust the time constant.
   (Example: MID)
5. Rotate MAIN DIAL to set the time constant.
   • The adjustable time constants are described in the table below.
6. To close the AGC (SSB) screen, push EXIT.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Default</th>
<th>Adjustable time constant</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSB</td>
<td>0.3 (FAST), 2.0 (MID), 6.0 (SLOW)</td>
<td>OFF, 0.1, 0.2, 0.3, 0.5, 0.8, 1.2, 1.6, 2.0, 2.5, 3.0, 4.0, 5.0 or 6.0</td>
</tr>
<tr>
<td>USB</td>
<td>0.1 (FAST), 0.5 (MID), 1.2 (SLOW)</td>
<td>OFF, 0.1, 0.2, 0.3, 0.5, 0.8, 1.2, 1.6, 2.0, 2.5, 3.0, 4.0, 5.0 or 6.0</td>
</tr>
<tr>
<td>CW/RTTY</td>
<td>3.0 (FAST), 5.0 (MID), 7.0 (SLOW)</td>
<td>OFF, 0.3, 0.5, 0.8, 1.2, 1.6, 2.0, 2.5, 3.0, 4.0, 5.0, 6.0, 7.0 or 8.0</td>
</tr>
<tr>
<td>AM</td>
<td>0.1 (FAST), 1.2 (MID), 7.0 (SLOW)</td>
<td>Fixed</td>
</tr>
<tr>
<td>FM</td>
<td>0.1 (FAST)</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

NOTE: When you are receiving weak signals, and a strong signal is momentarily received, the AGC function quickly reduces the receiver gain. When that signal disappears, the transceiver may not receive the weak signal because of the AGC action. In that case, select FAST, or touch [AGC] for 1 second to open the AGC screen, and then select OFF the time constant setting.
Using the Twin PBT

SSB, CW, RTTY and AM modes

In general, the Twin PBT (Passband Tuning) electronically narrows the IF passband width by shifting the IF frequency to slightly outside of the IF filter passband, to reject interference. The IC-7300 uses DSP for the PBT function.

You can narrow the IF passband width by rotating both inner (PBT1) and outer (PBT2) to the opposite direction from each other.

You can see the nearby signal using the Spectrum Scope (Section 5).

1. Rotate inner (PBT1) and outer (PBT2) to the opposite direction from each other.

2. Touch the Filter icon for 1 second to display the current passband width and shift frequency.
   • Opens the FILTER screen.

3. To close the FILTER screen, push EXIT.

NOTE: While rotating TWIN PBT, you may hear noise. This comes from the DSP unit and does not indicate an equipment malfunction.

Information
- Match both the inner (PBT1) and outer (PBT2) filters before operating the Twin PBT.
- Rejects interference of both higher and lower passbands.
- If you rotate the control too much, the received audio may not be heard because the passband width is too narrow.
- Displays the passband width and shift value.
- A dot is displayed above the passband width when you rotate TWIN PBT.
- Hold down TWIN PBT for 1 second to clear the PBT setting (the dot disappears).
- The PBT is adjustable in 50 Hz steps in the SSB, CW, and RTTY modes, and 200 Hz in the AM mode. In this case, the center shift value changes in 25 Hz steps in the SSB, CW, and RTTY modes, and 100 Hz in the AM mode.
- Rotating both the inner and outer controls to the same position shifts the IF left or right.
Selecting the IF filter

The transceiver has 3 IF filter passband widths for each mode, and you can select them on the FILTER screen. You can set the IF filter to wide (FIL 1), mid (FIL 2) or narrow (FIL 3).

1. Select the operating mode.
   (Example: USB)
2. Touch the filter icon for 1 second.
   - Opens the FILTER (SSB) screen.
3. Touch the filter icon more times to select FIL 1 (wide), FIL 2 (mid) or FIL 3 (narrow).
4. Touch [BW].
   - Selects the passband width mode.
5. Rotate (MAIN DIAL) to select the passband width.
   ①You cannot change the passband width in the FM or FM-D mode.
   ①When you change the passband width, the Twin PBT setting value is reset to the center position.
6. Touch [BW].
   - Cancels the passband width mode.
7. Repeat steps 2 to 6 to set the passband width for other modes except for the FM and FM-D.
8. To close the FILTER screen, push [EXIT].

<table>
<thead>
<tr>
<th>Mode</th>
<th>IF filter</th>
<th>Selectable range (steps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSB</td>
<td>FIL 1 (3.0 kHz)</td>
<td>50Hz to 500Hz (50 Hz)/600Hz to 3.6kHz (100 Hz)</td>
</tr>
<tr>
<td></td>
<td>FIL 2 (2.4 kHz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIL 3 (1.8 kHz)</td>
<td></td>
</tr>
<tr>
<td>SSB-D CW</td>
<td>FIL 1 (1.2 kHz)</td>
<td>50Hz to 500Hz (50 Hz)/600Hz to 3.6kHz (100 Hz)</td>
</tr>
<tr>
<td></td>
<td>FIL 2 (500 Hz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIL 3 (250 Hz)</td>
<td></td>
</tr>
<tr>
<td>RTTY</td>
<td>FIL 1 (2.4 kHz)</td>
<td>50Hz to 500Hz (50 Hz)/600Hz to 2.7kHz (100 Hz)</td>
</tr>
<tr>
<td></td>
<td>FIL 2 (500 Hz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIL 3 (250 Hz)</td>
<td></td>
</tr>
<tr>
<td>AM</td>
<td>FIL 1 (9.0 kHz)</td>
<td>200Hz to 10.0kHz (200 Hz)</td>
</tr>
<tr>
<td>AM-D</td>
<td>FIL 2 (6.0 kHz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIL 3 (3.0 kHz)</td>
<td></td>
</tr>
<tr>
<td>FM</td>
<td>FIL 1 (15 kHz)</td>
<td>Fixed</td>
</tr>
<tr>
<td>FM-D</td>
<td>FIL 2 (10 kHz)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIL 3 (7.0 kHz)</td>
<td></td>
</tr>
</tbody>
</table>

Selecting the IF filter shape

You can independently set the DSP filter shape for each operating mode to soft or sharp.

1. Set the operating mode to SSB, SSB-D or CW.
   (Example: USB)
2. Touch the filter icon for 1 second.
   - Opens the FILTER screen.
3. Touch the filter icon several times to select FIL1 (wide), FIL2 (mid) or FIL3 (narrow).
4. Touch [SHARP] or [SOFT].
5. To close the FILTER screen, push [EXIT].

TIP: When you set the IF filter to FIL2 or FIL3 in the FM mode, the transceiver will transmit in the FM narrow mode.
Noise Blanker

The Noise blanker eliminates pulse-type noise such as the noise from car ignitions. The Noise blanker cannot be used in the FM mode.

Push **NB** to turn the Noise Blanker ON or OFF.

**NOTE:** When using the Noise Blanker, received signals may be distorted if they are excessively strong or the noise is other than a pulse type. In that case, turn the OFF Noise Blanker, or shallow the DEPTH on the NB menu. See the description below for details.

Adjusting the NB level and time

To deal with various type of noise, you can adjust the attenuation level and noise width in the NB menu.

1. Hold down **NB** for 1 second.
   • Turns ON the Noise Blanker and opens the NB menu.
2. Touch the adjusting item.
   (Example: DEPTH)
3. Adjust the level.
   (Example: 8)

LEVEL
( Default: 50%)
Adjust the level where the Noise Blanker activates between 0 and 100%.

DEPTH
( Default: 8)
Adjust the noise attenuation level between 1 and 10.

WIDTH
( Default: 50)
Adjust the blanking duration time between 1 and 100.

IP Plus function

The IP Plus function improves the Intermodulation Distortion (IMD) quality by exerting the direct sampling system performance. This function optimizes the Analog/Digital Converter (ADC) against the distortion when you receive a strong input signal. It also improves the Third-order Intercept Point (IP3) while minimizing the reduction of the receive sensitivity.

1. Push **FUNCTION**.
   • The FUNCTION screen is displayed.
2. Touch [IP+].
   ①Touch [IP+] to turn the IP Plus function ON or OFF.
   ②Select ON to prioritize the IP quality, and select OFF to prioritize the receive sensitivity.
3. To close the FUNCTION screen, push **EXIT**.
   • “IP+” is displayed when ON is selected.

Selecting the IF filter shape (Continued)

• **SHARP**
  This selection is to emphasize the passband width of the filter. The filter has an almost ideal shape factor. Signals of the out of passband are extremely filtered out and it gives you better audio quality.

• **SOFT**
  The filter shoulders are roundly formed as in analog filters. This decreases noise components in the high and low frequencies of the filter passband and increases the S/N of the target signal. These characteristics play an effective role in picking up very weak signals in the 50 MHz band, for example. The shape factor is kept, and the sharpness of the bandpass is excellent.
Noise Reduction

The Noise Reduction function reduces random noise components and enhances desired signals that are buried in noise. The Noise Reduction function uses the DSP circuit.

Push NR to turn the Noise Reduction function ON or OFF.

- Adjusting the Noise Reduction level
Adjust the Noise Reduction level to where noise is reduced and the received signal is not distorted.

1. Hold down NR for 1 second.
   • Turns ON the Noise Reduction function and opens the NR menu.
2. Adjust the Noise Reduction level to between 0 and 15.
   □ Adjust to a higher level to increase the reduction level, and a lower level to decrease it.

Noise Reduction OFF
NR level 0
Noise components

Noise Reduction ON
NR level 4
Desired signal (CW)

Notch Filter

The IC-7300 has Auto Notch and Manual Notch functions.

- Auto Notch: Used in the SSB, AM and FM modes.

- Auto Notch function
Auto Notch automatically attenuates beat tones, tuning signals and so on.

Push NOTCH until “AN (Auto Notch)” is displayed.
□ Pushing NOTCH changes between “AN (Auto Notch),” “MN (Manual Notch)” and OFF.

- Manual Notch function
The Manual Notch attenuates beat tones, tuning signals and so on by adjusting a frequency in the NOTCH menu.

1. Hold down NOTCH for 1 second to display the NOTCH menu.
   • The Manual Notch is automatically selected and “MN” is displayed.
   □ Pushing [WIDTH] sets the Manual Notch filter width to “WIDE,” “MID” or “NAR.”
2. Slowly adjust the POSITION to manually attenuate the frequency.

NOTE: While adjusting, noise may be heard. This comes from the DSP unit and does not indicate an equipment malfunction.
**VOX function**

The VOX (Voice-Operated Transmission) function switches between transmit and receive with your voice. This function enables hands-free operation.

◊ **Adjusting the VOX function**

Before using the VOX function, adjust the following items.
- VOX GAIN
- ANTI VOX
- DELAY
- VOICE DELAY

1. Hold down **VOX/BK-IN** for 1 second.
   - Opens the VOX menu.
2. Touch the adjusting item.
   (Example: ANTI VOX)

3. Adjust the selected item.
   ① Adjust to the point where the transceiver does not switch to transmit due to the sound from the speaker or other devices.
   ② Touching VOICE DELAY selects “SHORT,” “MID,” “LONG” or “OFF.”

**VOX GAIN** (Default: 50%)

Adjust the transmit/receive switching threshold level to between 0% and 100% for VOX operation. Higher values make the VOX function more sensitive to your voice.

**ANTI VOX** (Default: 50%)

Adjust the ANTI VOX level to between 0% and 100% to prevent unwanted VOX activation from the speaker or other sounds. Higher values make the VOX function less sensitive.

**DELAY** (Default: 0.2s)

Adjust the DELAY to between 0 and 2.0 seconds, for a convenient interval for normal pauses in speech before returning to receive.

**VOICE DELAY** (Default: OFF)

Set the VOICE DELAY to prevent picking up your voice when switching to transmit. Select “SHORT,” “MID,” “LONG” or OFF.

◊ **Turning ON the VOX function**

1. Set the operating mode to SSB, AM or FM.
   (Example: USB)
2. Push **VOX/BK-IN** to turn ON the VOX function.
   ① Pushing **VOX/BK-IN** again turns OFF the VOX function.

Displayed
The $\Delta$TX function shifts the transmit frequency up to ±9.99 kHz without shifting the receive frequency.

1. Push $\Delta$TX.
   • The $\Delta$TX function turns ON.
   ① Pushing $\Delta$TX turns the $\Delta$TX function ON or OFF.
   ② While using the Fine Tuning function (p. 3-3), the $\Delta$TX frequency is displayed in 4 digits, instead of 3.

2. Set the $\Delta$TX frequency to match the receiving station’s frequency.

3. After communicating, push $\Delta$TX to turn the $\Delta$TX function OFF.

$\Delta$TX monitor function
When the $\Delta$TX function is ON, you can directly monitor the operating frequency by holding down XFC.

1. Push TX.
2. Push TX to turn the $\Delta$TX function ON or OFF.

Monitor function

The Monitor function enables you to monitor your transmit audio. Use this function to check the voice characteristics while adjusting transmit audio parameters.

1. Select the mode that you want to monitor. (Example: USB)
2. Push FUNCTION.
   • Opens the FUNCTION screen.
3. Touch [MONI] to turn ON the Monitor function. ① Touching [MONI] turns the Monitor function ON or OFF.

5. Adjust MONITOR to the clearest audio output between 0% and 100%, while speaking at your normal voice level.

NOTE: When using the VOICE DELAY (p. 4-7), turn OFF the Monitor function. Otherwise the transmitted audio will echo.
Setting the Speech Compressor

**SSB mode**
The Speech Compressor increases the average RF output power, improving readability at the receiving station. This function compresses the transmitter audio input to increase the average audio output level.

1. The function is effective for long-distance communication, or when propagation conditions are poor.

1. Select the SSB mode. (Example: USB)
2. Push FUNCTION.
   - Opens the FUNCTION screen.
3. Be sure that the Speech Compressor is OFF.
   - If the Speech Compressor is ON, touch [COMP] to turn it OFF.

4. Touch EXIT to close the FUNCTION screen.
5. Touch the Multi-function meter to display the ALC meter.
   - Touching the Multi-function meter sets the meter to Po, SWR, ALC, COMP, Vo or Io.

6. Adjust the MIC GAIN (p. 3-10) to where the ALC meter reads within the 30 to 50% range of the ALC zone.
7. Touch the Multi-function meter again to display the COMP meter.
8. Push FUNCTION.
   - Opens the FUNCTION screen.
9. Touch [COMP] to turn it ON.


11. While speaking into the microphone at your normal voice level, adjust the Speech Compressor level to where the COMP meter reads within the COMP zone (10 to 20 dB range).
   - When the COMP meter peaks exceed the COMP zone, your transmitted voice may be distorted.
Split frequency operation

Split frequency operation enables you to transmit and receive on different frequencies in the same or different bands.

There are 2 ways to use the Split frequency operation.
• Use the Quick Split function
• Use the receive and transmit frequencies set to VFO A and VFO B.

<table>
<thead>
<tr>
<th>Another station</th>
<th>My station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmit frequency</td>
<td>USB mode 21.29000 MHz</td>
</tr>
<tr>
<td>Receive frequency</td>
<td>USB mode 21.31000 MHz</td>
</tr>
</tbody>
</table>

♦ Using the Quick Split function
The Quick Split function enables you to automatically equalize the frequency and mode of VFOs to the displayed VFO, and activate the Split function.

1. Set VFO A’s receive frequency and operating mode.
   (Example: 21.29000 MHz in the USB mode)
2. Hold down SPLIT for 1 second.
   • The Quick Split function is turned ON and the VFO A settings are set to VFO B.
   • The VFO B frequency is displayed in the bottom right corner of the main screen.
3. While holding down XFO, set the operating frequency offset between transmit and receive.
4. Push A/B to return to VFO A.
   ♦ Pushing SPLIT turns the Split function ON or OFF.

♦ Using the receive and transmit frequencies set to VFO A and VFO B
1. Set VFO A’s receive frequency and operating mode.
   (Example: 21.29000 MHz in the USB mode)
2. Push A/B to select VFO B, and then set the receive frequency and the operating mode.
   (Example: 21.31000 MHz in the USB mode)
3. Push SPLIT to turn ON the Split function.
4. Push A/B to return to VFO A.
**Split Lock function**

The Split Lock function is convenient for changing only the transmit frequency but not changing the receive frequency.

1. Turn ON the Split Lock function.
   
   **MENU** > **SET > Function > SPLIT > SPLIT LOCK**

2. Turn ON the Split function.

3. Hold down **SPEECH** for 1 second to turn ON the Dial Lock function.

4. While holding down **XFC**, set the transmit frequency.

**Displayed when Dial Lock is ON.**

**Setting the transmit filter width**

You can select the transmit filter width for the SSB mode to WIDE (wide), MID (middle) or NAR (narrow).

1. Set the operating mode to USB or LSB.
2. Push **FUNCTION**.
   - Opens the FUNCTION screen.
3. Touch **[TBW]**.
   ① Touching **[TBW]** sets the filter width to WIDE, MID or NAR.

**FUNCTION screen (SSB mode)**

① The transmit filter widths are set to the following values by default.
   - **WIDE**: 100 Hz to 2900 Hz
   - **MID**: 300 Hz to 2700 Hz
   - **NAR**: 500 Hz to 2500 Hz

You can change the filter width values in the following settings. (p. 8-2)

**Operating CW**

◊ **Setting the CW pitch control**

You can set the received CW audio pitch and the CW side tone to suit your preference without changing the operating frequency.

1. Select the CW mode.
2. Display the Multi-function menu.
3. Touch **[CW PITCH]**.
4. Set the CW pitch to between 300 and 900 Hz
Setting the key speed
You can set the key speed of the internal electric keyer.

1. Select the CW mode.
2. Display the Multi-function menu.
3. Touch [KEY SPEED].
4. Set the key speed to between 6 and 48 Words Per Minute (WPM).

About the Break-in function
Use the Break-in function in the CW mode to automatically switch between transmit and receive when keying. The IC-7300 is capable of Semi Break-in and Full break-in modes.

TIP: The key type is set to “Paddle” by default. You can select the keyer type on the CW-KEY SET screen. (p. 4-14)

Semi Break-in operation
In the Semi Break-in mode, the transceiver transmits when keying, and then automatically returns to receive after a preset time after you stop keying.

1. Select the CW mode.
2. Push VOX/BK-IN to display “BKIN.”
   - Pushing VOX/BK-IN selects “BKIN (Semi Break-in),” “F-BKIN (Full Break-in)” or OFF (no indication).
3. To adjust the Break-in delay time, hold down VOX/BK-IN for 1 second.
   • Opens the BKIN menu.
4. Set to where the transceiver does not return to receive while keying.
5. To close the BKIN menu, push EXIT.
Operating CW

About the Break-in function (Continued)

Full Break-in operation
In the Full Break-in mode, the transceiver automatically transmits while keying down, and then immediately returns to receive after keying up.

1. Select the CW mode.
2. Push \texttt{VOX/BK-IN} until "F-BKIN" is displayed.
   \(\textcircled{1}\) Pushing \texttt{VOX/BK-IN} selects "BKin (Semi Break-in)," "F-BKIN (Full Break-in)" or OFF (no indication).

3. Using a straight key or paddle.
   \(\textcircled{1}\) In the Full break-in mode, the transceiver automatically returns to receive without a preset break-in delay time after you stop keying. The transceiver receives while keying up.

CW Auto Tuning function
You can tune in a CW signal you are receiving using the Auto Tuning function. You can automatically tune by pushing \texttt{Auto}. This function is active in only the CW mode.

\(\textcircled{1}\) While using the RIT, the RIT frequency is automatically tuned by this function.

\begin{align*}
\text{CW mode (LSB side)} & \quad \text{CW-R mode (USB side)} \\
\text{Interference} & \quad \text{Desired signal} \\
\text{Interference} & \quad \text{Desired signal}
\end{align*}

TIP: Reversing the carrier point
The carrier point of the CW mode is LSB by default. You can change it to USB in the "CW Normal Side" item of the OTHERS set screen. (p. 8-4)

MENU » SET > Function > CW Normal Side

\(\textcircled{1}\) When this setting is set to "USB," the CW and CW-R modes are reversed.

About the CW Reverse mode
The CW-R (CW Reverse) mode reverses the receive Beat Frequency Oscillator (BFO) to receive CW signals.
Use when interfering signals are near the desired signal and you want to use the CW-R to reduce interference.

\begin{align*}
\text{CW mode (LSB side)} & \quad \text{CW-R mode (USB side)} \\
\text{Interference} & \quad \text{Desired signal} \\
\text{Interference} & \quad \text{Desired signal}
\end{align*}

NOTE: When receiving a weak signal, or receiving a signal with interference, the Auto Tuning function may tune the receiver to an undesired signal, or may not start to tune. In such case, a warning beep sounds.
Operating CW (Continued)

◊ Electronic Keyer function
You can set the Memory Keyer function settings, paddle polarity settings, and so on of the Electronic Keyer.

1. Open the KEYER screen in the CW mode.
   - You can select [KEYER] on the MENU screen only in the CW mode.
2. Touch [EDIT/SET].
   - Opens the EDIT/SET screen.
3. Select the desired item to set.
4. To close the KEYER screen, push EXIT several times.

◊ Monitoring the CW side tone
When the transceiver is in standby and the Break-In function is OFF, you can listen to the CW side tone without actually transmitting.

Information
- This enables you to match your transmit frequency exactly to another station’s by matching the audio tone.
- You can also use the CW side tone (make sure the Break-in function is OFF (p. 4-12)) to practice CW sending.
- You can adjust the CW side tone level in “Side Tone Level.”

Key set menu
You can set the memory keyer repeat time, dot/dash ratio, paddle polarity, key type, and so on.

Contest number menu
You can set the number style, count up trigger, and present number.

Keyer memory edit menu
You can edit the Keyer memories.
Operating RTTY (FSK)

With the built-in RTTY decoder and the contents set in the RTTY TX memory, you can operate the basic RTTY operation without using an external device.

۱ If you are using PSK software, refer to the software manual.

1. Select the RTTY mode.
2. Open the RTTY DECODE screen.

۱ You can select [DECODE] on the MENU screen only while in the RTTY mode.

3. Rotate [MAIN DIAL] to tune the desired signal.

۱ Information
• Aim for a symmetrical wave form, and be sure the peak points align with the mark (2125 Hz) and shift (170 Hz) frequency lines in the FFT scope.
• The S-meter displays the received signal strength, when a signal is received.
• If you cannot decode correctly, try in the RTTY-R mode.
• Tune to where both “◄” and “►” are displayed in the tuning indicator.

4. Transmit the RTTY memory.
• The TX status indicator lights red and the Po meter swings.

۱ About the RTTY reverse mode
If you are receiving an RTTY signal but cannot decode correctly, try in the RTTY-R (reverse) mode.

Select the RTTY-R mode by touching [RTTY] on the MODE screen.
۱ Touching [RTTY] toggles between the RTTY mode and the RTTY-R mode.

۱ Twin Peak Filter
The Twin Peak Filter (TPF) changes the audio frequency response by boosting the mark and space frequencies for better reception of RTTY signals, or for decoding the external AF output on a PC.

1. While in the RTTY mode, display the Multi-function menu.

2. Touch [TPF].
۱ Touching [TPF] turns the function ON or OFF.

3. To close the Multi-function menu, push [EXIT].

NOTE: When you are using the Twin Peak Filter, the received audio output may increase. This is not a malfunction.
Operating RTTY (FSK) (Continued)

Functions on the RTTY DECODE screen
Open the RTTY DECODE screen in the RTTY mode.

Setting the decoder threshold level
Adjusting the RTTY decoder threshold level prevents characters been decoded by noise, even though you have not received an RTTY signal.

1. Open the RTTY DECODE screen.

2. Touch [<1>].

3. Touch [ADJ].

4. Checking the RTTY DECODE, rotate [MAIN DIAL] to adjust the threshold level to where the characters are not displayed by noise.
   - If the threshold level adjusted is too high, you cannot receive weak signals.
   - Touch [DEF] for 1 second to reset to the default setting.

5. To close the THRESHOLD setting screen, touch [ADJ].

---

TIP: Touching [EXPD/SET] toggles between the Normal screen and Expanded screen.

Key | Action
---|---
<1> | Selects the function menu.
<2> | Selects the function menu.
HOLD | Turns the Hold function ON or OFF. "HOLD" is displayed, and the RTTY DECODE screen stops.
CLR | Touch for 1 second to clear the displayed characters. While the Hold function is ON, this clears the characters and cancels the Hold function.
TX MEM | Opens the RTTY MEMORY screen.
LOG | Opens the RTTY DECODE LOG screen. Starts/Stop logging, selects the file type or the time stamp.
LOG VIEW | Opens the RTTY DECODE LOG VIEW screen. You can check the saved RTTY log files.
ADJ | Opens the THRESHOLD screen. You can set the threshold level.
EXPD/SET | Touch Selects the Expanded or Normal screen. Touch for 1 second Opens the RTTY DECODE SET screen.
A repeater receives your radio’s signals and simultaneously retransmits them on a different frequency to provide a greater communication range. When using a repeater, the transmit frequency shifts from the receive frequency by an offset amount. You can access a repeater using the split function.

1. Select the desired operating band. (p. 3-2) (Example: 28 MHz band)
2. Rotate MAIN DIAL to set the operating frequency. (Example: 29.650.00 MHz)
3. Select the FM mode.
4. Hold down SPLIT for 1 second.
   • Turns the Split function ON.
   • Turns the Tone function ON and “TONE” is displayed.
   • Displays the transmit frequency.

You can set the frequency offset for the HF band. (p. 8-3)

MENU > Function > SPLIT > FM SPLIT Offset (HF)

You can set the frequency offset for the 50 MHz band. (p. 8-3)

MENU > Function > SPLIT > FM SPLIT Offset (50M)

Setting the repeater tone frequency
Some repeaters require a subaudible tone to be accessed. Subaudible tones are superimposed on your signal, and must be set in advance. Do the following steps to set the tone frequency.

1. Select the FM mode.
2. Push FUNCTION.
   • Opens the FUNCTION screen.
3. Touch [TONE] for 1 second.

   FUNCTION screen (FM mode)
   • Opens the TONE FREQUENCY screen.
4. Rotate MAIN DIAL to select the desired subaudible tone frequency.

   TONE FREQUENCY screen
   Touch for 1 second to reset to the default.

   ● Selectable tone frequencies

<table>
<thead>
<tr>
<th>Tone Frequency</th>
<th>67.0</th>
<th>88.5</th>
<th>114.8</th>
<th>151.4</th>
<th>177.3</th>
<th>203.5</th>
<th>250.3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>69.3</td>
<td>91.5</td>
<td>118.8</td>
<td>156.7</td>
<td>179.9</td>
<td>206.5</td>
<td>254.1</td>
</tr>
<tr>
<td></td>
<td>71.9</td>
<td>94.8</td>
<td>123.0</td>
<td>159.8</td>
<td>183.5</td>
<td>210.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>74.4</td>
<td>97.4</td>
<td>127.3</td>
<td>162.2</td>
<td>186.2</td>
<td>218.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>77.0</td>
<td>100.0</td>
<td>131.8</td>
<td>165.5</td>
<td>189.9</td>
<td>225.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>79.7</td>
<td>103.5</td>
<td>136.5</td>
<td>167.9</td>
<td>192.8</td>
<td>229.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>82.5</td>
<td>107.2</td>
<td>141.3</td>
<td>171.3</td>
<td>196.6</td>
<td>233.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>85.4</td>
<td>110.9</td>
<td>146.2</td>
<td>173.8</td>
<td>199.5</td>
<td>241.8</td>
<td></td>
</tr>
</tbody>
</table>

Checking the repeater tone frequency
You can check the tone frequency by receiving the repeater’s input frequency and tone scanning. To receive the input signals, the transceiver detects the subaudible tone frequency using the tone scan function.

1. Touch [T-SCAN].
   • The scan starts, and then stops when the matching tone frequency as the repeater is received.

   Blinks while scanning

2. To close the TONE FREQUENCY screen, push EXIT.
Spectrum scope screen

This spectrum scope enables you to display the activity on the selected band, as well as the relative strengths of various signals.

The IC-7300 has two spectrum scope modes. One is the Center mode, and another one is the Fixed mode. You can also turn the Waterfall display ON or OFF. In addition, you can select a Mini scope screen to save screen space.

• Center mode screen

• Fixed mode screen

Using the Spectrum Scope

1. Open the SPECTRUM SCOPE screen.

2. To exit the SPECTRUM SCOPE screen, push EXIT.
**SCOPE OPERATION**

---

**Center mode**
Displays signals around the operating frequency within the selected span. The operating frequency is always displayed in the center of the screen.

1. Open the SPECTRUM SCOPE screen.

2. Touch [CENT/FIX].
   - “CENTER” is displayed when the Center mode is selected.
   - Touch [CENT/FIX] to toggle between the Center and Fixed modes.

3. Touch [SPAN] several times to select the scope span.
   - Selectable span: ±2.5, 5.0, 10, 25, 50, 100, 250 and 500 kHz
   - Touch [SPAN] for 1 second to select the ±2.5 kHz span.

4. To exit the SPECTRUM SCOPE screen, push **EXIT**.

---

**Fixed mode**
Displays signals within a specified frequency range. The selected frequency band activity can easily be observed this mode.

Three Fixed Edge bands can be set for each amateur frequency band covered by the transceiver in the SCOPE SET screen.

1. Open the SPECTRUM SCOPE screen.

2. Touch [CENT/FIX].
   - “FIX” is displayed when the Fixed mode is selected.
   - Touch [CENT/FIX] to toggle between the Center and Fixed modes.

3. Touch [EDGE] several times to select the Edge frequency.
   - When the operating frequency moves outside the upper or lower Edge frequency, “<<” or “>>” is displayed in the upper side corners of the SPECTRUM SCOPE screen.
   - “<<”: The frequency is outside the lower edge.
   - “>>”: The frequency is outside the higher edge.
   - When the frequency goes further away, “Scope Out of Range” is displayed.

4. To exit the SPECTRUM SCOPE screen, push **EXIT**.

---

**Marker**
The Marker displays the operating frequency in the SPECTRUM SCOPE screen.

- **Marker types**
  - RX: RX marker displays the receive frequency.
  - TX: TX marker displays the transmit frequency.

- Touch [MARKER] to select the marker.
  - When the Center mode is selected: TX, Marker OFF
  - When the Fixed mode is selected: RX/TX, RX

- When the Maker is displayed and the frequency is out of range, “<<” or “>>” is displayed in the upper side corners of the SPECTRUM SCOPE screen.
  - “<<”: The frequency is outside the lower edge.
  - “>>”: The frequency is outside the higher edge.

- **About RX Marker**
  In the Fixed mode, the RX Marker displays the operating frequency within a specified frequency range. So, the transceiver always displays the RX marker in the scope screen.

   - In the Center mode, the operating frequency stays on the Center of the screen. Thus, the transceiver does not display the RX Marker.

   - When the Hold function is ON, the RX Marker is displayed to display the operating frequency’s position.

---

**Spectrum scope screen (Continue)**

**Center mode screen**

**Fixed mode screen**

**Marker icon**

**RX Marker ON (Fixed mode)**
**SCOPE OPERATION**

---

**Spectrum scope screen (Continue)**

◊ **Touch screen operation**

When you touch the FFT scope zone or the waterfall zone in the SPECTRUM SCOPE screen, the area will be zoomed in. Then you touch the signal in the zoomed area, you can directly tune your frequency to the signal in the SPECTRUM SCOPE screen.

1. Open down XFC changes the transmit frequency.

1. **Open the SPECTRUM SCOPE screen.**

2. **Touch the Scope screen.**
   - The area around the touched point is zoomed in.
   - Touch only the FFT scope zone or Waterfall zone.

3. **Touch the signal in the zoomed area.**
   - In the Center mode, the operating frequency changes to the touched point, and the point moves to the screen center.
   - In the Fixed mode, the operating frequency and marker change to the touched point.
   - Touch out of the zoomed area to close the zoomed window.

◊ **Mini scope screen**

The Mini scope screen can be simultaneously displayed with another function displays, such as the RTTY DECODE screen and the AUDIO SCOPE screen.

Push M.SCOPE to turn the Mini scope screen ON or OFF.

Hold down M.SCOPE for 1 second to display the SPECTRUM SCOPE screen.

---

**Audio scope screen**

This audio scope enables you to display the received signal’s frequency component on the FFT scope, and its waveform components on the Oscilloscope. The FFT scope also has an waterfall.

1. **Open the AUDIO SCOPE screen.**

   ![Audio Scope Screen]

   - **Key**
   - **Action**
   - **ATT**
     - Touch
     - Selects the attenuator for the FFT scope.
     - 0 (OFF), 10, 20, or 30 dB
     - Touch for 1 second
     - Turns OFF the attenuator. (0 dB)
   - **HOLD**
     - Sets the Hold function to ON or OFF.
     - “HOLD” is displayed and freezes the current audio spectrum.
   - **LEVEL**
     - Selects the Oscilloscope level.
     - 0, –10, –20, or –30 dB
   - **TIME**
     - Selects the Oscilloscope sweep time.
     - 1, 3, 10, 30, 100, or 300 ms/Div
   - **EXPD/SET**
     - Touch
     - Selects the Expanded or Normal screen.
     - Touch for 1 second
     - Enters the AUDIO SCOPE SET screen.

2. **To exit the AUDIO SCOPE screen, push EXIT.**
About the SD card

The SD and SDHC cards are not supplied by Icom. User supplied.

You can use an SD card of up to 2 GB, or an SDHC of up to 32 GB. Icom has checked the compatibility with the following SD and SDHC cards.

(As of February 2016)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Type</th>
<th>Memory size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SanDisk®</td>
<td>SD</td>
<td>2 GB</td>
</tr>
<tr>
<td></td>
<td>SDHC</td>
<td>4 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16 GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32 GB</td>
</tr>
</tbody>
</table>

① The above list does not guarantee the card’s performance.
② Throughout the rest of this document, the SD card and an SDHC card are simply called the SD card or the card.

TIP: Icom recommends that you save the transceiver’s factory default data for backup. (p. 8-7)

NOTE:
• Before using the SD card, thoroughly read the card’s instructions.
• If you do any of the following, the card data may be corrupted or deleted.
  - You remove the card from the transceiver while the card is being accessed.
  - A power failure occurs or the power cable is disconnected while the card is being accessed.
  - You drop, impact or vibrate the card.
• Do not touch the contacts of the card.
• The transceiver takes a longer time to recognize a high capacity card.
• The card will get warm if continuously used for a long period of time.
• The card has a certain lifetime, so data reading or writing may not be possible after using it for a long period. When reading or writing data is impossible, the card’s lifetime has ended. In that case, use a new one.
We recommend you make a separate backup file of the important data onto your PC. (p. 8-7)
• Icom will not be responsible for any damage caused by data corruption of a card.

Saving data onto the SD card

You can save the following data onto the card:
• Data settings of the transceiver
  Memory channel contents saved in the transceiver.
• Communication contents
  The transmitted and received audio.
• Communication log
  The communication and receive history log.
• Voice audio for the Voice TX function
  Voice audio to use with the Voice TX function.
• RTTY decode log
  The transmitted or received RTTY decode history log.
• Captured screens

NOTE: Format all SD cards to be used with the transceiver with the built-in Format function. Format, even preformatted cards for PCs or other uses. (p. 6-2)

◊ Inserting

Insert the card into the slot until it locks in place, and makes a ‘click’ sound.
• Displays the SD card icon when the SD card is inserted.
① Be sure to check the card orientation.

◊ Removing

Push in the SD card until a click sounds.
• The card is unlocked, and you can pull it out.
① If you remove the SD card while the transceiver’s power is ON, be sure to unmount it. (p. 6-2)
6-2

Using an SD Card

Formatting an SD Card

Before using an SD card with the transceiver, be sure to format all SD cards with the built-in Format function. This creates a special folder on the card that you need for operations like updating the firmware.

Format all cards, including a brand new SD card, and even preformatted cards for PCs or other uses.

NOTE: Formatting a card erases all its data. Before formatting any used card, back up its data onto your PC.

(p. 8-7)

IMPORTANT: Even if you format an SD card, some data may remain in the card. When you dispose the card, be sure to physically destroy it to avoid unauthorized access to any data that remains.

1. Insert an SD card into the card slot.
2. Open the SD CARD set screen.
3. Select “Format.”
4. Touch [YES] to start formatting.
   To cancel formatting, touch [NO].
   • After formatting, returns to the SD CARD set screen.
5. To close the SET screen, push [EXIT] several times.
6. Remove the card from the transceiver.

Unmounting an SD Card

Before you remove a card when the transceiver is ON, be sure to electrically unmount it, as shown below. Otherwise the data may be corrupted or deleted.

1. Open the SD CARD set screen.
2. Select “Unmount.”
3. Touch [YES] to unmount.
   To cancel unmounting, touch [NO].
   • After unmounting, returns to the SD CARD set screen.
4. To close the SET screen, push [EXIT] several times.
5. Remove the card from the transceiver.

Before you remove a card when the transceiver is ON, be sure to electrically unmount it, as shown below. Otherwise the data may be corrupted or deleted.

1. Open the SD CARD set screen.
2. Select “Unmount.”
3. Touch [YES] to unmount.
   To cancel unmounting, touch [NO].
   • After unmounting, returns to the SD CARD set screen.
4. To close the SET screen, push [EXIT] several times.
**About the internal antenna tuner**

The internal automatic antenna tuner automatically matches the transceiver to the antenna within the range of 16.7 ~ 150 Ω (SWR of less than 3:1). After the tuner matches an antenna, the latching relay combinations are memorized as a preset point for each frequency range (100 kHz steps). Therefore, when you change the frequency range, the latching relay combinations are automatically preset to the memorized point for fast tuning.

- When you install a new antenna, or you want to change the antenna settings, you can clear all of the internal antenna tuner preset points with the “<<Preset Memory Clear>>” item on the TUNER set screen. (p. 8-3)

**NOTE:** When the transceiver receives a strong physical shock, the internal latching relays may be returned to an unlatched condition. In that case, push [TUNER] to turn OFF the tuner, then turn ON again to reset the all latching relays.

**Internal antenna tuner operation**

1. Push [TUNER] to turn ON the internal antenna tuner.
   - “TUNE” is displayed when the tuner is ON.
2. Tune the antenna.
   - To tune the antenna, see “Manual tuning” or “PTT Tuner start” below.

**Manual tuning**

You can manually tune the antenna before transmitting.

1. Hold down [TUNER] for 1 second to start manual tuning.
   - The tuner reduces the SWR to less than 1.5:1 after 2~3 seconds of tuning.
   - While tuning, a side tone is heard and “TUNE” blinks red.
2. After tuning, “TUNE” is displayed.
   - If the tuner cannot reduce the SWR to less than 1.5:1 after 20 seconds, tuning stops and “TUNE” goes out.

**PTT Tuner start**

The tuner is always activated when PTT is pushed after the frequency is changed (more than 1% from last-tuned frequency). This function tunes the antenna for the first transmission on a new frequency.

1. This function can be turned ON in the “PTT Start” item of the TUNER set screen. (p. 8-3)

**NOTE:**
- If the SWR is higher than about 1.5:1 when tuning more than 100 kHz on an antenna’s preset point, hold down [TUNER] for 1 second to start manual tuning.
- If you transmit into a high SWR, “TUNE” may blink. In that case, hold down [TUNER] for 1 second to manually tune.

If the tuner cannot tune the antenna

- Repeat manual tuning several times.
- Even if the tuner cannot tune the antenna on the first tuning, it may succeed at the second tuning.
- Some antennas, especially for the low bands, have a narrow bandwidth. These antennas may not tune at the edge of their bandwidth, therefore, tune such an antenna as follows:

(Example):

Suppose you have an antenna which has an SWR of 1.5:1 at 3.55 MHz and an SWR of 3:1 at 3.8 MHz.

1. Set 3.55 MHz, and hold down [TUNER] for 1 second to start manual tuning.
2. Set 3.80 MHz, and hold down [TUNER] for 1 second to start manual tuning.
Set mode description

You can use the Set mode to set infrequently changed values or function settings.

**TIP:** The Set mode is constructed in a tree structure. You may go to the next tree level, or go back a level, depending on the selected item.

**Entering the Set mode**

1. Push [MENU].
   • Opens the MENU screen.

2. Touch [SET].
   • Opens the SET screen.

3. Rotate [MULTI] to select the desired item.
   ① You can also select the item by touching [▲] or [▼] in the screen.

4. Push [MULTI] to go to the next tree level.
   ① You can also go to the next tree level by directly touching the desired item in the screen.

5. Repeat steps 3 and 4 to open the desired item’s setting screen.
   ① To go back the previous tree level, push [EXIT].

6. Rotate [MULTI] to select the desired option, and then push [MULTI] to set it.

   **Information**
   • You can also select the option by directly touching the option or [+] or [−] in the screen.
   • When you continuously set other items in the same tree level, repeat step 6.
   • When you continuously set other item in the different tree level, push [EXIT] to go back the previous tree level.

   **TIP:** How to reset to the default setting
   Touching the item or its option for 1 second displays the Quick menu, and then touch “Default” to reset to the default setting.

7. To close the SET screen, push [EXIT] several times.
**Tone Control**

**SSB RX HPF/LPF** (Default: – – – –   –   – – – –)
Sets the receive audio high-pass filter and low-pass filter cut-off frequencies in 100 Hz steps.
① If this item is set, the “SSB RX Bass” and “SSB RX Treble” items are automatically set to “0.”

**SSB RX Bass** (Default: 0)

**SSB RX Treble** (Default: 0)
Sets the bass or treble level of the receive audio.

**AM RX HPF/LPF** (Default: – – – –   –   – – – –)
Sets the receive audio high-pass filter or low-pass filter cut-off frequencies in 100 Hz steps.
Selectable ranges:
① If this item is set, the “AM RX Bass” and “AM RX Treble” items are automatically set to “0.”

**AM RX Bass** (Default: 0)

**AM RX Treble** (Default: 0)
Sets the bass or treble level of the receive audio.

**FM RX HPF/LPF** (Default: – – – –   –   – – – –)
Sets the receive audio high-pass filter or low-pass filter cut-off frequencies in 100 Hz steps.
① If this item is set, the “FM RX Bass” and “FM RX Treble” items are automatically set to “0.”

**FM RX Bass** (Default: 0)

**FM RX Treble** (Default: 0)
Sets the bass or treble level of the receive audio.

**CW RX HPF/LPF** (Default: – – – –   –   – – – –)

**RTTY RX HPF/LPF** (Default: – – – –   –   – – – –)
Sets the receive audio high-pass filter or low-pass filter cut-off frequencies in 100 Hz steps.

**SSB TX Bmss** (Default: 0)

**SSB TX Treble** (Default: 0)
Sets the bass or treble level of the receive audio.

**SSB TBW (WIDE)** (Default: 100 – 2900)

**SSB TBW (MID)** (Default: 300 – 2700)

**SSB TBW (NAR)** (Default: 500 – 2500)
Sets the transmission pass bandwidth to wide, mid, or narrow, by changing the lower and higher cut-off frequencies.

**AM TX Bass** (Default: 0)

**AM TX Treble** (Default: 0)
Sets the bass or treble level of the transmit audio.

**FM TX Bass** (Default: 0)

**FM TX Treble** (Default: 0)
Sets the bass or treble level of the transmit audio.
## Function

**Beep Level**  
(Default: 50%)  
Sets the beep output level.  
①If the “Beep (Confirmation)” item is set to “OFF,” no beep sounds.

**Beep Level Limit**  
(Default: ON)  
Selects whether or not to limit the volume up to the specified level.

**Beep (Confirmation)**  
(Default: ON)  
Turns the Confirmation beep ON or OFF.  
①If the “Beep Level” item is set to “0%,” no beep sounds.

**Band Edge Beep**  
(Default: ON (Default))  
Turns the Band Edge beep ON or OFF.

①**Information**  
• If the “Beep Level” item is set to “0%,” no beep sounds.  
• When you tune into an amateur band’s frequency range, the Band Edge high beep sounds.  
• When you tune out of an amateur band’s frequency range, the Band Edge low beep sounds.

**RF/SQL Control**  
(Default: RF+SQL)  
Set the (outer) control operation.

**MF Band ATT**  
(Default: ON)  
Turns the MF Band Attenuator function ON or OFF.  
This function adds approximately 16 dB of attenuation to prevent a desired signal from becoming distorted when very strong MF band signals are received.  
This function is usable when the frequency is set to between 0.03000 and 1.59999 MHz, for only receiving.  
①When you receive a weak signal on the MF band, select “OFF.”  
①The 16 dB of the MF band attenuation is added to any other attenuation value that you have set.

**TX Delay HF**  
(Default: OFF)

**TX Delay 50M**  
(Default: OFF)

**TX Delay 70M**  
(Default: OFF)  
Sets the TX delay time on the HF, 50 or 70 MHz band.  
①If an external equipment’s rise time is slower than that of the IC-7300, a reflected wave is produced and it may damage the IC-7300. To prevent this, set the appropriate delay time so that no reflected wave is produced.  
①Select “OFF” for no rise speed.  
*Depending on the transceiver’s version, this item may not be displayed.

**Time-Out Timer (CI-V)**  
(Default: OFF)  
Sets the Time-out Timer for CI-V operation.  
This setting is valid only transmitting initiated by a CI-V command or pushing [TRANSMIT].  
①Select “OFF” for no time limit.

**Quick SPLIT**  
(Default: ON)  
Turns the Quick Split function ON or OFF.

**FM SPLIT Offset (HF)**  
(Default: –0.100 MHz)

**FM SPLIT Offset (50M)**  
(Default: –0.500 MHz)  
Sets the frequency offset for the Split function in the FM mode on the HF or 50 MHz band.

**SPLIT LOCK**  
(Default: OFF)  
Turns the Split Lock function ON or OFF.

**[TUNER] Switch**  
(Default: Auto)  
Selects whether or not to save the internal antenna tuner’s status after pushing [TUNER] on each band.

**PTT Start**  
(Default: OFF)  
Turns the PTT Start Tuning function ON or OFF.

<<**Preset Memory Clear>>**  
Clears the all of the internal antenna tuner preset points.

**RTTY Mark Frequency**  
(Default: 2125)  
Selects the RTTY mark frequency.  
①When the internal RTTY decoder is used, 2125 Hz is automatically selected.

**RTTY Shift Width**  
(Default: 170)  
Selects the RTTY shift width.  
①When the internal RTTY decoder is used, 170 Hz is automatically selected.

**RTTY Keying Polarity**  
(Default: Normal)  
Selects the RTTY keying polarity.

**SPEECH Language**  
(Default: English)  
Selects the speech language.

**SPEECH Speed**  
(Default: Fast)  
Selects the speech speed.
Function (Continued)

S-Level SPEECH (Default: ON)
Turns the S-meter level announcement ON or OFF.

MODE SPEECH (Default: OFF)
Turns the operating mode announcement ON or OFF.

SPEECH Level (Default: 50%)
Sets the Voice Synthesizer audio output level.

[SPEECH/LOCK] Switch (Default: SPEECH/LOCK)
Selects action.

Lock Function (Default: MAIN DIAL)
This function electronically locks MAIN DIAL or the panel display* to prevent setting changes by accidental operation.
*Keys and dials are also locked except for AF RF/SQL, POWER, and SPEECH.

Memo Pad Quantity (Default: 5)
Sets the number of memo pad channels.

MAIN DIAL Auto TS (Default: High)
Sets the Auto Tuning Step function for MAIN DIAL. When rapidly rotating MAIN DIAL, the tuning step is automatically changed according to the rotation speed.

MIC Up/Down Speed (Default: Fast)
Sets the response speed of [▲]/[▼] on the supplied microphone while holding down.

Quick RIT/△TX Clear (Default: OFF)
Selects the operation of CLEAR for the RIT and △TX functions.

[NOTCH] Switch (SSB) (Default: Auto/Manual)

[NOTCH] Switch (AM) (Default: Auto/Manual)
Selects the notch function used in the SSB or AM mode.

SSB/CW Synchronous Tuning (Default: OFF)
Turns the Displayed Frequency Shift function ON or OFF.
This function automatically shifts the frequency to match the CW pitch when the operating mode is toggled between SSB and CW.

CW Normal Side (Default: LSB)
Selects the carrier point in the CW normal mode.

Screen Capture [POWER] SW (Default: OFF)
Assigns the Screen Capture function to POWER.

Screen Capture File Type (Default: PNG)
Selects the file format for the Screen Capture function.

Keyboard Type (Default: Full Keyboard)
Sets the keyboard entry type to Ten-Key or Full Keyboard.

Calibration Marker (Default: OFF)
Turns the reference frequency calibration marker ON or OFF.

REF Adjust
Adjusts the internal reference frequency.

NOTE: The default setting of “RF Adjust” may differ slightly, depending on the transceiver’s version.
### Connectors

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACC/USB Output Select</strong></td>
<td>AF</td>
<td>Selects the signal output from [ACC] and [USB].</td>
</tr>
<tr>
<td><strong>ACC/USB AF Output Level</strong></td>
<td>50%</td>
<td>Sets the AF output level of [ACC] and [USB].</td>
</tr>
<tr>
<td><strong>ACC/USB AF SQL</strong></td>
<td>OFF (OPEN)</td>
<td>Selects whether or not to output the audio from [ACC] and [USB], according to the squelch state. The same audio signals are output from [USB] and [ACC].</td>
</tr>
<tr>
<td><strong>ACC/USB AF Beep/Speech... Output</strong></td>
<td>OFF</td>
<td>Sets the Beep and Speech audio output condition of [ACC] and [USB]. You should set the “ACC/USB AF SQL” item to “AF.” The beep level is limited when the “Beep Level Limit” item is “ON.”</td>
</tr>
<tr>
<td><strong>ACC/USB IF Output Level</strong></td>
<td>50%</td>
<td>Sets the IF output level of [ACC] and [USB].</td>
</tr>
<tr>
<td><strong>ACC MOD Level</strong></td>
<td>50%</td>
<td>Sets the modulation input level of [ACC].</td>
</tr>
<tr>
<td><strong>USB MOD Level</strong></td>
<td>50%</td>
<td>Sets the modulation input level of [USB].</td>
</tr>
<tr>
<td><strong>DATA OFF MOD</strong></td>
<td>MIC,ACC</td>
<td>Selects the connector(s) to input the modulation signal when the data mode is OFF.</td>
</tr>
<tr>
<td><strong>DATA MOD</strong></td>
<td>ACC</td>
<td>Selects the connector(s) to input the modulation signal when the data mode is ON.</td>
</tr>
<tr>
<td><strong>External Keypad VOICE</strong></td>
<td>OFF</td>
<td>Enables voice memory transmission using an external keypad.</td>
</tr>
<tr>
<td><strong>External Keypad KEYER</strong></td>
<td>OFF</td>
<td>Enables keyer memory transmission using an external keypad.</td>
</tr>
<tr>
<td><strong>External Keypad RTTY</strong></td>
<td>OFF</td>
<td>Enables RTTY memory transmission using an external keypad.</td>
</tr>
<tr>
<td><strong>USB Serial Function</strong></td>
<td>CI-V</td>
<td>Selects the signal output from [USB].</td>
</tr>
</tbody>
</table>

### CI-V Baud Rate

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>Selects the CI-V data transfer rate. When “Auto” is selected, the baud rate is automatically set according to the data rate of the connected controller.</td>
</tr>
</tbody>
</table>

### CI-V Address

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>94h</td>
<td>Selects the CI-V address. “94h” is the default address of IC-7300.</td>
</tr>
</tbody>
</table>

### CI-V Transceive

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>Turns the Transceive function ON or OFF.</td>
</tr>
</tbody>
</table>

### CI-V USB Port

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link to [REMOTE]</td>
<td>Selects the internal connection type between the [USB] and [REMOTE] CI-V ports.</td>
</tr>
</tbody>
</table>

### CI-V USB Baud Rate

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>Selects the CI-V data transfer rate when remotely controlling the IC-7300 through the [USB] CI-V port. When “Auto” is selected, the baud rate is automatically set according to the data rate of the external controller. This setting is valid only when the “CI-V USB Port” item is set to “Unlink from [REMOTE].”</td>
</tr>
</tbody>
</table>

### CI-V USB Echo Back

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Turns the Data Echo Back function ON or OFF, when remotely controlling the IC-7300 through the [USB] CI-V port. This setting is valid only when the “CI-V USB Port” item is set to “Unlink from [REMOTE].”</td>
</tr>
</tbody>
</table>

### CI-V Output (for ANT)

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>Enables outputting the antenna controller status (frequency and so on) from the [REMOTE] port. Address “01h” is reserved. The usable addresses are limited to 02h ~ DFh.</td>
</tr>
</tbody>
</table>

### CI-V USB →REMOTE Transceive Address

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00h</td>
<td>Sets the address used to remotely control the transceiver or receiver using the optional RS-BA1, through the [USB] port. The external equipment control signal is output from the [REMOTE] port.</td>
</tr>
</tbody>
</table>

### CI-V USB Baud Rate

<table>
<thead>
<tr>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>Selects the CI-V data transfer rate when remotely controlling the IC-7300 through the [USB] CI-V port. When “Auto” is selected, the baud rate is automatically set according to the data rate of the external controller. This setting is valid only when the “CI-V USB Port” item is set to “Unlink from [REMOTE].”</td>
</tr>
</tbody>
</table>
Connectors (Continued)

RTTY Decode Baud Rate  (Default: 9600)
Selects the data transfer rate (Baud rate) of decoded RTTY signals.

USB SEND  (Default: OFF)
You can control transmit and receive from the PC through the USB port.
Selects the control port to be used for communication between the IC-7300 and PC, according to the operating condition.
① You cannot select the terminal which is already selected in the “USB Keying (CW)” or “USB Keying (RTTY)” item.

USB Keying (CW)  (Default: OFF)
You can control transmit, receive and keying from the PC through the USB port.
Selects the control port to be used for communication between the IC-7300 and PC, according to the operating condition.
① You cannot select the terminal which is already selected in the “USB SEND” or “USB Keying (RTTY)” item.

USB Keying (RTTY)  (Default: OFF)
You can control transmit, receive and RTTY (FSK) from the PC through the USB port.
Selects the control port to be used for communication between the IC-7300 and PC according to the operating condition.
① You cannot select the terminal which is already selected in the “USB SEND” or “USB Keying (CW)” item.

Display

LCD Backlight  (Default: 50%)
Sets the LCD backlight brightness.

Display Type  (Default: A)
Sets the display type to A or B.

Display Font  (Default: Basic)
Selects the font for the frequency readout.

Meter Peak Hold  (Default: ON)
Turns the Meter peak hold function ON or OFF.

Memory Name  (Default: ON)
Turns the Memory name display in the Memory mode ON or OFF.

MN-Q Popup (MN OFF→ON)  (Default: ON)
Selects whether or not to display the Manual Notch filter width when you select the Manual Notch.

BW Popup (PBT)  (Default: ON)
Selects whether or not to display the PBT shift value while rotating [TWIN PBT] [CLR].

BW Popup (FIL)  (Default: ON)
Selects whether or not to display the IF filter width and shift value when you switch the IF filter by touching the filter icon.

Screen Saver  (Default: 60min)
Sets the Screen Saver function.
This function activates when no operation is performed for a preset period of time.

Opening Message  (Default: ON)
Selects whether or not to display the opening message at power ON.

My Call
Displays text as the opening message, up to 10 characters.

Power ON Check  (Default: ON)
Selects whether or not to display the RF Power level at power ON.

Display Language  (Default: English)
Sets the display language.
### Time Set

**Date**
(Default: 2000/01/01)
Sets the date (Year/Month/Day).
(The day of the week is automatically set.)

**Time**
(Default: 0:00)
Sets the current time.
(The time is displayed in the 24 hour format.)

**UTC Offset**
(Default: ± 0:00)
Sets the UTC offset time.

### SD Card

**Load Setting**
Selects the saved data file to load.

**Save Setting**
Saves the setting data onto an SD card.

**SD Card Info**
Displays the SD card capacity and the time remaining for voice recording.

**Screen Capture View**
Displays the selected screen capture.

**Firmware Update**
Displays the Firmware Update mode.

**Format**
Formats the SD card.
If you use a brand new SD card, be sure to format it.

**Unmount**
Unmounts the SD card.
Before you remove a card when the transceiver is ON, be sure to electrically unmount it.
Otherwise the data may be corrupted or deleted.

### Others

**Version**
Displays the transceiver firmware’s version number.

**Touch Screen Calibration**
Touch to adjust the touch screen.
①See section 14 of the Full Manual for details.

**Partial Reset**
Resets operating settings to their default values (VFO frequency, VFO settings, menu contents) without clearing the items below:
- Memory channel contents
- MY Call
- Memory Keyer
- RTTY memory
- User Band Edge
- REF Adjust
- Fixed Edges
①See “Resetting” (p. 9-1) for details.

**All Reset**
Clears all data and returns all settings to their factory defaults.
Memory channel contents, filter setting and so on will all be cleared, so you will need to rewrite your operating settings.
①See “Resetting” (p. 9-1) for details.

**Emergency**
Sets the Emergency function.
①See section 11 of the Full Manual for details.
Resetting

Occasionally, erroneous information may be displayed. This may be caused by static electricity or by other factors.
If this problem occurs, turn OFF the transceiver. After waiting a few seconds, turn ON the transceiver.
If the problem still exists, perform a Partial reset as described to the right.
If the problem still exists after a Partial reset, perform an All reset as described to the right.

**NOTE:** An All reset clears all data and returns all settings to their factory defaults. Save memory channel content, setting status, and so on, onto an SD card before the All reset. (p. 6-1)

**After performing the partial reset**
A Partial reset resets operating settings to their default values (VFO frequency, VFO settings, menu contents) without clearing the items listed below:
- Memory channel contents
- MY Call
- Memory Keyer
- RTTY memory
- User Band Edge
- REF Adjust
- Fixed Edges

**After performing the All reset**
All reset clears all data and returns all settings to their factory defaults.
Memory channel contents, filter setting and so on will all be cleared, so you will need to rewrite your operating settings, unless you have a backup.

**When you cannot enter the Set mode**
If a touch screen operation error or an unexpected operation occurs, you cannot enter the Set mode. In this case, perform the All reset as described below:

While holding down CLEAR and V/M, push POWER.

**Partial reset**
1. Open the RESET screen.
   - MENU » SET > Others > Reset
2. Touch “Partial reset.”
   - The confirmation screen is displayed.
3. Touch [Yes].
   - After the resetting, the default VFO mode screen is displayed.

**All reset**
1. Open the RESET screen.
   - MENU » SET > Others > Reset
2. Touch “All reset.”
   - The confirmation screen is displayed.
3. Touch [NEXT].
4. After carefully reading the displayed message, touch [YES] to perform the All reset.
   - After the resetting, the default VFO mode screen is displayed.
**General**
- **Frequency coverage (unit: MHz):**
  - Receiver: 0.030000 ~ 74.800000
  - *1 Some frequency ranges are not guaranteed.
  - *2 Depending on the transceiver version.
- **Operating modes:** USB/LSB (J3E), CW (A1A), RTTY (F1B), AM (A3E) and FM (F3E)
- **Number of memory channels:** 101 (including 2 scan edges)
- **Antenna connector:** SO-239 (antenna impedance: 50 Ω)
- **Power supply requirement:** 13.8 V DC (±15%)
- **Operating temperature range:** –10°C to +60°C, +14°F to +140°F
- **Frequency stability:** Less than ±0.5 ppm (–10°C to +60°C, +14°F to +140°F)
- **Frequency resolution:** 1 Hz (minimum)
- **Power consumption:**
  - Receive Standby: 0.9 A
  - Maximum audio: 1.25 A
  - Transmit Maximum power: 21.0 A
- **Dimensions (projections not included):** 240 (W)×94 (H)×238 (D) mm, 9.4 (W)×3.7 (H)×9.4 (D) in
- **Weight (approximately):** 4.2 kg, 9.3 lb

**Transmitter**
- **Transmit output power:**
  - HF and 50 MHz bands
    - SSB/CW/RTTY/FM: 2~100 W
    - AM: 1~25 W
  - 70 MHz band*2
    - SSB/CW/RTTY/FM: 2~50 W
    - AM: 1~12.5 W
  - *2 Depending on the transceiver version.
- **Modulation system:**
  - SSB: P.S.N. modulation
  - AM: Low power modulation
  - FM: Reactance modulation
- **Spurious emission:**
  - Harmonics: Less than ~50 dB (1.8~28 MHz)
  - Less than ~63 dB (50 MHz band)
  - Less than ~60 dB (70 MHz band)
  - Out-of-band emission: Less than ~40 dB (1.8~28 MHz)
  - Less than ~60 dB (50 MHz band)
  - Less than ~60 dB (70 MHz band)
- **Carrier suppression:** More than 50 dB
- **Unwanted sideband suppression:** More than 50 dB
- **Microphone impedance:** 600 Ω
**Receiver**

- **Receive system:** Direct sampling superheterodyne
- **Intermediate frequency:** 36 kHz
- **Sensitivity (Filter: SOFT):**
  - **SSB/CW** (at 10 dB S/N)
    - 1.8 ~ 29.999999 MHz
    - 50 MHz band
    - 70 MHz band*²
    - Less than –123 dBm (0.16 μV) (P.AMP1 ON)
    - Less than –125 dBm (0.13 μV) (P.AMP2 ON)
    - Less than –123 dBm (0.16 μV) (P.AMP2 ON)
  - **AM** (at 10 dB S/N)
    - 0.5 ~ 1.8 MHz
    - 1.8 ~ 29.999999 MHz
    - 50 MHz and 70 MHz bands
    - Less than –85 dBm (12.6 μV) (P.AMP1 ON)
    - Less than –101 dBm (2.0 μV) (P.AMP1 ON)
    - Less than –107 dBm (1.0 μV) (P.AMP2 ON)
  - **FM** (at 12 dB SINAD)
    - 28.0 ~ 29.7 MHz
    - 50 MHz and 70 MHz bands
    - Less than –113 dBm (0.5 μV) (P.AMP1 ON)
    - Less than –119 dBm (0.25 μV) (P.AMP2 ON)

*² Depending on the transceiver version.

- **Squelch sensitivity (threshold):**
  - **SSB**
  - **FM**
  - Less than –92 dBm (5.6 μV)
  - Less than –117 dBm (0.3 μV)
  - (HF band: P.AMP1 ON, 50 MHz band: P.AMP2 ON)

- **Selectivity (Filter: SHARP):**
  - **SSB** (BW=2.4 kHz)
  - More than 2.4 kHz/–6 dB
  - Less than 3.4 kHz/–40 dB
  - **CW** (BW=500 Hz)
  - More than 500 Hz/–6 dB
  - Less than 700 Hz/–40 dB
  - **RTTY** (BW=500 Hz)
  - More than 500 Hz/–6 dB
  - Less than 800 Hz/–40 dB
  - **AM** (BW=6 kHz)
  - More than 6.0 kHz/–6 dB
  - Less than 10 kHz/–40 dB
  - **FM** (BW=15 kHz)
  - More than 12.0 kHz/–6 dB
  - Less than 22 kHz/–40 dB

- **Spurious and image rejection:** More than 70 dB (except for ADC aliasing)
- **Audio output power:** More than 2.5 W (8 Ω load, 1 kHz, 10% distortion)
- **AF output impedance:** 8 Ω
- **RIT variable range:** ±9.999 kHz

**Antenna tuner**

- **Tunable impedance range:** 16.7~150 Ω (unbalanced) (less than 3:1 VSWR)
- **Tuning accuracy:** Less than 1.5:1 VSWR
- **Tuning time (approximately):**
  - 2~3 seconds (average)
  - 15 seconds (maximum)

*(All stated specifications are typical and subject to change without notice or obligation.*)
## Options

**IC-PW1/IC-PW1EURO LINEAR AMPLIFIER**
HF/50 MHz all band 1 kW linear amplifier including an automatic antenna tuner. An optional OPC-599 is required for the connection.

**AH-2b ANTENNA ELEMENT**
A 2.5 m (8.2 ft) long antenna element for mobile operation with the AH-4.

**AH-4 ANTENNA TUNER**
Automatic antenna tuner to tune a long wire antenna for base, portable, or mobile HF/50 MHz operation.

**AH-740 AUTOMATIC TUNING ANTENNA**
High performance, automatic high-speed tuning antenna.
The optional AH-5NV NVIS KIT is available.

**HM-36 MICROPHONE**
Hand microphone with [UP]/[DOWN] switches.

**PS-126 DC POWER SUPPLY**
- Output voltage: 13.8 V DC
- Maximum output current: 25 A

**CT-17 CI-V CONVERTER**
For remote transceiver control using a PC equipped with an RS-232C port.

**SM-50 DESKTOP MICROPHONE**
Dynamic microphone with [UP]/[DOWN] switches.

**SM-30 DESKTOP MICROPHONE**
Desktop microphone with a low frequency cut function.

**SP-23 EXTERNAL SPEAKER**
External speaker with high and low frequency cut functions.

**SP-34 EXTERNAL SPEAKER**
External speaker with high and low frequency cut functions.

- **AH-5NV NVIS KIT**
  Use with the AH-740.
- **AH-710 FOLDED DIPOLE ANTENNA**
  Covers 2 to 30 MHz wide frequency range.
  - Element length: 24.5 m (80.4 ft)
  - Coaxial cable (supplied): 30 m (98.4 ft)
- **HM-219 MICROPHONE**
  The same as supplied.
- **MB-118 MOUNTING BRACKET**
  To mount the transceiver inside a vehicle.
- **MB-123 CARRYING HANDLE**
- **OPC-420 CONTROL CABLE**
  A 10 m (32.8 ft) shielded control cable for the AH-4.
- **OPC-599 ADAPTER CABLE**
  13-pin ACC connector adaptor to 7-pin + 8-pin ACC connectors.

- **RS-BA1 IP REMOTE CONTROL SOFTWARE**
  *NOTE:* To remotely control transceivers using the RS-BA1, BE SURE to comply with your local regulations.
- **SP-33 EXTERNAL SPEAKER**
  Designed for base station operation.
- **SP-35 EXTERNAL SPEAKER**
  Designed for mobile operation.

Approved Icom optional equipment is designed for optimal performance when used with an Icom transceiver. Icom is not responsible for the destruction or damage to an Icom transceiver in the event the Icom transceiver is used with equipment that is not manufactured or approved by Icom.
Mounting the MB-118

Mount the MB-118 MOUNTING BRACKET to a place where it can be firmly attached.

① We recommend that you periodically check whether the screws are loose or not, especially after a long period of use.

**NOTE:**
- Before mounting the MB-118, carefully read PRECAUTIONS (p. vii) and decide the mounting place.
- DO NOT use bolts other than the ones that are supplied with the MB-118. Other bolts (longer than 8 mm/0.31 in) may damage the internal units.

Drill 4 holes of 3 mm (0.12 in) for the bracket location.

① Drill 5.5 mm–5.6 mm (0.21 in–0.22 in) holes when using the supplied hex screws.

Adjust for the best viewing angle.
ACC socket

Connects to external equipment or a PC to control the external unit or to control the transceiver.

• ACC socket

<table>
<thead>
<tr>
<th>ACC</th>
<th>PIN No.</th>
<th>NAME</th>
<th>DESCRIPTION</th>
<th>SPECIFICATIONS</th>
</tr>
</thead>
</table>
| 13-pin | 1 | 8 V | Regulated 8 V output. (Used as the reference voltage for the band voltage.) | Output voltage: 8 V ±0.3 V  
Output current: Less than 10 mA |
| | 2 | GND | Connects to ground. | — |
| | 3 | SEND*1 | Input/output pin.  
An external unit controls the transceiver.  
When this pin goes to ground, the transceiver transmits.  
The pin goes low when the transceiver transmits. | Input voltage (RX): 2.0 to 20.0 V  
Input voltage (TX): ±0.5 to ±0.8 V  
Current flow: Maximum 20 mA  
Output voltage (TX): Less than 0.1 V  
Current flow: Maximum 200 mA |
| | 4 | BDT | Not used. | — |
| | 5 | BAND | Band voltage output. (Varies with the selected amateur band) | Output voltage: 0 to 8.0 V |
| | 6 | ALC | ALC voltage input. | Input level: –4 to 0 V  
Input impedance: More than 3.3 kΩ |
| | 7 | NC | — | — |
| | 8 | 13.8 V | 13.8 V output when power is ON. | Output current: Maximum 1 A |
| | 9 | TKEY | Not used. | — |
| | 10 | FSKK | Controls RTTY keying. | High level: More than 2.4 V  
Low level: Less than 0.6 V  
Output current: Less than 2 mA |
| | 11 | MOD | Modulator input. | Input impedance: 10 kΩ  
Input level: 100 mV rms*3 |
| | 12 | AF/IF (IF=12 kHz)*2 | Fixed AF detector or receive IF (12 kHz) signal output. | Output impedance: 4.7 kΩ  
Output level: 100 ~ 300 mV rms*4 |
| | 13 | SQL S | Squelch output. Grounded when the squelch opens. | SQL open: Less than 0.3 V/5 mA  
SQL closed: More than 6.0 V/10 μA |

*1 When the SEND terminal controls an inductive load, such as a relay, a counter-electromotive force can malfunction or damage the transceiver. To prevent this, we recommend adding a switching diode, such as an 1SS133, on the load side of the circuit to absorb the counter-electromotive force. When the diode is added, a delay in relay switching may occur. Be sure to check its switching action before operating.

(Example) ACC socket

 Relay

Switching diode

To a non-Icom linear amplifier

*2 You can change the pin 12 setting in the "ACC/USB Output Select" item on the CONNECTORS set screen. If the pin is set to IF, the transceiver outputs a 12 kHz IF signal from [ACC]. In that case, you can listen to the DRM broadcast with the application software receiver that is installed into your PC.

*3 You can change the input level in the "ACC MOD Level" item on the CONNECTORS set screen. (p. 8-5) 100 mV rms is at the 50% (default) setting.

*4 You can change the output level in the "ACC/USB AF Output Level" item on the CONNECTORS set screen. (p. 8-5) Approximately 200 mV rms is at the 50% (default) setting.
ACC socket (Continued)

**OPC-599 ACC conversion cable pin assignments**
The OPC-599 ACC conversion cable connects between a 13 pin [ACC] socket and 7 pin and 8 pin sockets.

![Diagram of ACC socket and conversion cable]

**Microphone connector**

![Diagram of microphone connector]

<table>
<thead>
<tr>
<th>PIN No.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Microphone input (Impedance: 600 Ω)</td>
</tr>
<tr>
<td>2</td>
<td>+8 V DC output (Maximum 10 mA)</td>
</tr>
<tr>
<td>3</td>
<td>Grounded when the squelch opens.</td>
</tr>
<tr>
<td>4</td>
<td>PTT</td>
</tr>
<tr>
<td>5</td>
<td>PTT ground</td>
</tr>
<tr>
<td>6</td>
<td>Microphone ground</td>
</tr>
<tr>
<td>7</td>
<td>AF output (varies with the [AF] control.)</td>
</tr>
</tbody>
</table>

**External keypad**

A circuit is used to output memory content from 4 memories. You can output desired memory content such as that from a CW Memory keyer (M1 ~ M4), Voice memory (T1 ~ T4), RTTY Memory (RT1 ~ RT4) to be transmitted.

- Push a switch to send the memory information.
- Hold down the switch for 1 second to repeatedly send the memory information.

To use the external keypad, turn ON the following items in the CONNECTORS set screen. (p. 8-5)

MENU » SET > Connectors > External Keypad

- VOICE: ON
- KEYER: ON
- RTTY: ON

The External keypad is not supplied by Icom. (User supplied)
KEY jack
Connects to a CW straight key or a paddle:
6.35 mm (¼ in) (d)
When connecting a CW straight key.

EXT-SP jack
Connects to an external speaker:
3.5 mm (¼ in) (d)
• Output impedance: 4 ~ 8 Ω
• Output level: More than 2.5 W at 10% distortion into an 8 Ω load.

REMOTE jack
Used for computer control and transceive operation:
3.5 mm (¼ in) (d)
The optional CT-17 is required when connecting a PC to [REMOTE].

ALC jack
Connects to the ALC output jack of a non-Icom linear amplifier. (RCA Plug)
• Control voltage: –4 ~ 0 V

SEND jack
The terminal goes low when the transceiver transmits. (RCA Plug)
This terminal is used to control an external non-Icom linear amplifier.
T/R control voltage and current must be less than 16 V DC and 0.5 A.

PHONES jack
Connects to standard stereo headphones:
3.5 mm (¼ in) (d)
• Output impedance: 8 ~ 16 Ω
• Output level: More than 5 mW into an 8 Ω load.

DC power socket
Accepts the regulated DC power for 13.8 V DC ±15% through the supplied DC power cable.

WARNING! NEVER reverse the DC power cable polarity.
INDEX

Numbers and symbols
1 Hz step Fine Tuning function .................................................. 3-3
1/4 Tuning function .................................................................. 3-4
5 MHz frequency band operation ............................................. 3-11
ΔTX function ........................................................................ 4-8
ΔTX monitor function ............................................................ 4-8

A
ACC socket ............................................................................. 12-1
Accessories, supplied .............................................................. i
AGC
AGC function control .............................................................. 4-2
AGC time constant preset value, selecting .............................. 4-2
AGC time constant, setting ...................................................... 4-2
ALC jack ................................................................................ 12-3
All reset .................................................................................. 9-1
ANT VOX .................................................................................. 4-7
Attenuator ............................................................................. 4-1
Audio scope screen ................................................................. 5-3
Auto Notch function ............................................................... 4-6
Auto Tuning Step function ..................................................... 3-4

B
Band Edge
Beep .................................................................................... 3-5
Entering .................................................................................. 3-6
Band operation, 5 MHz frequency ........................................... 3-11
Band stacking registers, using ............................................... 3-2
Break-in function .................................................................. 4-12

C
Center mode .......................................................................... 5-2
Screen ................................................................................... 5-1
Characters, entering and editing .......................................... 1-7
Connection
Front panel ........................................................................... 2-1
Rear panel ............................................................................. 2-2
Connections and installation .................................................. 2-1
Connector
ACC ................................................................................... 12-1
Information ........................................................................... 12-1
Microphone ......................................................................... 12-2
Connectors (Set mode) .......................................................... 8-5
CW
Auto Tuning function ........................................................... 4-13
Operating ............................................................................... 4-11
Pitch control, setting ............................................................. 4-11
Reverse mode ....................................................................... 4-13
Side tone, monitoring ............................................................. 4-14

D
DC power socket .................................................................... 12-3
Decoder threshold level, setting ............................................. 4-16
DELAY ......................................................................................... 4-7
DEPTH (Noise Blanker) .......................................................... 4-5
Dial Lock function ................................................................. 3-9
Display ................................................................................... 8-6

E
Editing
Characters ............................................................................. 1-7
Example ................................................................................ 1-8
Keyboard ............................................................................... 1-7
Electronic Keyer function ...................................................... 4-14
Entering
Example ................................................................................ 1-8
Characters ............................................................................. 1-7
Keyboard ............................................................................... 1-7
Set mode ............................................................................. 8-1
Equalizing VFO A and VFO B .................................................. 3-1
External DC power supply, connecting .................................. 2-3
External keypad ................................................................. 12-2
EXT-SP jack ........................................................................... 12-3

F
Features .................................................................................. i
Filter, Twin Peak ................................................................... 4-15
Fixed mode ............................................................................. 5-2
Screen ................................................................................... 5-1
FM repeater operation ............................................................. 4-17
Formatting an SD card ............................................................ 6-2
Frequency
Directly entering ................................................................ 3-4
Setting .................................................................................. 3-3
Front panel ............................................................................. 1-1
Connection ........................................................................... 2-1
Function ............................................................................... 8-3
FUNCTION screen ............................................................... 1-6

G
Grounding ............................................................................. 2-1

H
Heat dissipation ..................................................................... 2-1

I
IF filter
Selecting ................................................................................ 4-4
Shape .................................................................................... 4-4
Inserting the SD card ............................................................. 6-1
Installation and connections .................................................. 2-1
Installation notes .................................................................. 3-3
IP Plus function ..................................................................... 4-5

K
KEY jack .................................................................................. 12-3
Key speed, setting ................................................................. 4-12
Keyboard
Entering and editing .............................................................. 1-7
Keyboard types ..................................................................... 1-7
Keypad, external ................................................................. 12-2

L
LEVEL (Noise Blanker) ........................................................... 4-5
Lock function (dial) ............................................................... 3-9
# INDEX

<table>
<thead>
<tr>
<th>M</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main dial, using</td>
<td>Scope operation</td>
</tr>
<tr>
<td>Maintenance</td>
<td>SD card</td>
</tr>
<tr>
<td>Manual Notch function</td>
<td>Formatting</td>
</tr>
<tr>
<td>Manual tuning</td>
<td>Saving data</td>
</tr>
<tr>
<td>Marker</td>
<td>Inserting</td>
</tr>
<tr>
<td>MB-118, mounting</td>
<td>Removing</td>
</tr>
<tr>
<td>Memory and VFO modes</td>
<td>Set mode</td>
</tr>
<tr>
<td>MENU screen</td>
<td>Unmounting</td>
</tr>
<tr>
<td>Meter display</td>
<td>SEND jack</td>
</tr>
<tr>
<td>Meter display selection</td>
<td>Set mode</td>
</tr>
<tr>
<td>Microphone connector</td>
<td>Description</td>
</tr>
<tr>
<td>Microphone gain, adjusting</td>
<td>Entering</td>
</tr>
<tr>
<td>Mini scope screen</td>
<td>Speech Compressor, setting</td>
</tr>
<tr>
<td>Monitor function</td>
<td>Specifications</td>
</tr>
<tr>
<td>Monitoring the CW side tone</td>
<td>Spectrum scope</td>
</tr>
<tr>
<td>Multi-function menus</td>
<td>Screen</td>
</tr>
<tr>
<td>Multi-function meter</td>
<td>Using</td>
</tr>
<tr>
<td>Noise Blanker</td>
<td>Split frequency operation</td>
</tr>
<tr>
<td>Level and time, adjusting</td>
<td>Split Lock function</td>
</tr>
<tr>
<td>Noise Reduction</td>
<td>SQL level and RF gain</td>
</tr>
<tr>
<td>Level, adjusting</td>
<td>OPC-599 ACC conversion cable pin assignments</td>
</tr>
<tr>
<td>Notch Filter</td>
<td>Operating</td>
</tr>
<tr>
<td>Auto</td>
<td>Operation</td>
</tr>
<tr>
<td>Manual</td>
<td>3-2</td>
</tr>
<tr>
<td>Options</td>
<td>4-6</td>
</tr>
<tr>
<td>Others (Set mode)</td>
<td>11-1</td>
</tr>
<tr>
<td>P</td>
<td>Q</td>
</tr>
<tr>
<td>Panel description</td>
<td>QUICK MENU</td>
</tr>
<tr>
<td>Partial reset</td>
<td>1-6</td>
</tr>
<tr>
<td>PHONES jack</td>
<td>Quick Split function, using</td>
</tr>
<tr>
<td>Power</td>
<td>4-10</td>
</tr>
<tr>
<td>ON or OFF</td>
<td>U</td>
</tr>
<tr>
<td>When first applying</td>
<td>Unmounting an SD card</td>
</tr>
<tr>
<td>Preamplifiers</td>
<td>USB port</td>
</tr>
<tr>
<td>PTT Tuner start</td>
<td>12-3</td>
</tr>
<tr>
<td>R</td>
<td>V</td>
</tr>
<tr>
<td>Rear panel</td>
<td>VFO</td>
</tr>
<tr>
<td>Receiver</td>
<td>VFO A and VFO B, equalizing</td>
</tr>
<tr>
<td>Receiving and transmitting</td>
<td>VFO A or VFO B, selecting</td>
</tr>
<tr>
<td>REMOTE jack</td>
<td>VFO and Memory modes</td>
</tr>
<tr>
<td>Removing the SD card</td>
<td>VFO mode, using</td>
</tr>
<tr>
<td>Repeater tone frequency, setting</td>
<td>4-1</td>
</tr>
<tr>
<td>Reset</td>
<td>3-9</td>
</tr>
<tr>
<td>All</td>
<td>VOICE DELAY</td>
</tr>
<tr>
<td>Partial</td>
<td>Volume level, adjusting</td>
</tr>
<tr>
<td>RF gain and SQL level</td>
<td>VOX function</td>
</tr>
<tr>
<td>RIT</td>
<td>Adjusting</td>
</tr>
<tr>
<td>Function</td>
<td>Turning ON</td>
</tr>
<tr>
<td>Monitor function</td>
<td>VOX GAIN</td>
</tr>
<tr>
<td>RTTY</td>
<td>WIDTH (Noise Blanker)</td>
</tr>
<tr>
<td>DECODE screen, functions</td>
<td>4-6</td>
</tr>
<tr>
<td>(FSK), operating</td>
<td>Reverse mode</td>
</tr>
<tr>
<td>Reverse mode</td>
<td>4-15</td>
</tr>
<tr>
<td>Speech Compressor, setting</td>
<td>4-9</td>
</tr>
<tr>
<td>Specifications</td>
<td>10-1</td>
</tr>
<tr>
<td>Spectrum scope</td>
<td>3-9</td>
</tr>
<tr>
<td>Monitor function</td>
<td>Transmitted power, adjusting</td>
</tr>
<tr>
<td>Auto</td>
<td>Transmitter</td>
</tr>
<tr>
<td>Twin PBT, using</td>
<td>Twin Peak Filter</td>
</tr>
<tr>
<td>Twin PBT, using</td>
<td>4-3</td>
</tr>
<tr>
<td>Twin peak Filter</td>
<td>4-15</td>
</tr>
<tr>
<td>Unmounting an SD card</td>
<td>6-2</td>
</tr>
<tr>
<td>USB port</td>
<td>2-2</td>
</tr>
</tbody>
</table>

**Trademarks:**

- **ii**
INSTALLATION NOTES

For amateur base station installations it is recommended that the forward clearance in front of the antenna array is calculated relative to the EIRP (Effective Isotropic Radiated Power). The clearance height below the antenna array can be determined in most cases from the RF power at the antenna input terminals.

As different exposure limits have been recommended for different frequencies, a relative table shows a guideline for installation considerations.

Below 30 MHz, the recommended limits are specified in terms of V/m or A/m fields as they are likely to fall within the near-field region. Similarly, the antennas may be physically short in terms of electrical length and that the installation will require some antenna matching device which can create local, high intensity magnetic fields. Analysis of such MF installations is best considered in association with published guidance notes such as the FCC OET Bulletin 65 Edition 97-01 and its annexes relative to amateur transmitter installations. The EC recommended limits are almost identical to the FCC specified ‘uncontrolled’ limits and tables exist that show pre-calculated safe distances for different antenna types for different frequency bands. Further information can be found at http://www.arrl.org/.

**Typical amateur radio installation**

Exposure distance assumes that the predominant radiation pattern is forward and that radiation vertically downwards is at unity gain (sidelobe suppression is equal to main lobe gain). This is true of almost every gain antenna today. Exposed persons are assumed to be beneath the antenna array and have a typical height of 1.8 m.

The figures assume the worst case emission of a constant carrier.

For the bands 10 MHz and higher the following power density limits have been recommended:

10–50 MHz 2 W/sq m

**Vertical clearance by EIRP output**

<table>
<thead>
<tr>
<th>Watts</th>
<th>Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.1 m</td>
</tr>
<tr>
<td>10</td>
<td>2.8 m</td>
</tr>
<tr>
<td>25</td>
<td>3.4 m</td>
</tr>
<tr>
<td>100</td>
<td>5 m</td>
</tr>
<tr>
<td>1000</td>
<td>12 m</td>
</tr>
</tbody>
</table>

**Forward clearance by EIRP output**

<table>
<thead>
<tr>
<th>Watts</th>
<th>Clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>2 m</td>
</tr>
<tr>
<td>1000</td>
<td>6.5 m</td>
</tr>
<tr>
<td>10,000</td>
<td>20 m</td>
</tr>
<tr>
<td>100,000</td>
<td>65 m</td>
</tr>
</tbody>
</table>

In all cases any possible risk depends on the transmitter being activated for long periods. (actual recommendation limits are specified as an average during 6 minutes)

Normally the transmitter is not active for long periods of time. Some radio licenses will require that a timer circuit automatically cuts the transmitter after 1–2 minutes etc.

Similarly some types of emission, i.e., SSB, CW, AM etc. have a lower ‘average' output power and the assessed risk is even lower.

**List of Country codes (ISO 3166-1)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Codes</th>
<th>Country</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>AT</td>
<td>Liechtenstein</td>
<td>LI</td>
</tr>
<tr>
<td>Belgium</td>
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III