ICOM

Icom Inc.

BASIC MANUAL

HF/50 MHz TRANSCEIVER

IC-7610

Icom Inc.

Thank you for choosing this Icom product. The IC-7610 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-7610 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-7610.

IMPORTANT

READ ALL INSTRUCTIONS carefully completely before using the transceiver.
SAVE THIS INSTRUCTION MANUAL— This instruction manual contains basic operating instructions for the IC-7610. For the advanced operating instructions, see the Advanced Manual on the supplied CD.

FEATURES

• *RF Direct Sampling System*
  The IC-7610 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.

• *2 identical receivers*
  The IC-7610 has 2 independent receiver circuits for the Main and Sub bands.

• *A built-in DIGI-SEL unit*
  Both the Main and Sub receivers have built-in DIGI-SEL (digital preselector) units. These reject interfering signals.

• *Real-Time Spectrum Scope*
  Displays the Main and Sub band conditions. It provides class-leading performance in resolution, sweep speed and provides a 100 dB dynamic range.

• *A built-in automatic antenna tuner*

• *Multi-function control for easy settings*

• *Extra large 7 inch touch screen color display*

• *External monitor connection with a DVI-D port*

• *BNC type RX IN/OUT connectors*

• *Class Leading RMDR and Phase Noise Characteristics*

• *IP remote control capability with the optional RS-BA1 IP REMOTE CONTROL SOFTWARE*

• *Remote encoder capability with the optional RC-28 REMOTE ENCODER*

• *Dualwatch operation*

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

SUPPLIED ACCESSORIES
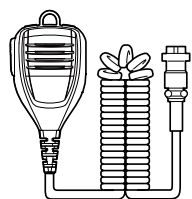
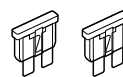Hand microphone (HM-219)
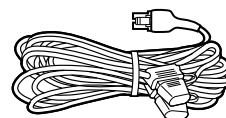
DC power cable (3 m: 9.8 ft)

CW key plug (6.35 mm: 1/4" Stereo)

CD

Spare fuse (30 A)

Spare fuse (5 A)

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

FCC INFORMATION

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.

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.

ABOUT CE AND DOC

Hereby, Icom Inc. declares that the versions of IC-7610 which have the "CE" symbol on the product, comply with the essential requirements of the Radio Equipment Directive, 2014/53/EU, and the restriction of the use of certain hazardous substances in electrical and electronic equipment Directive, 2011/65/EU. The full text of the EU declaration of conformity is available at the following internet address:
http://www.icom.co.jp/world/support

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EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ DANGER!	Personal death, serious injury or an explosion may occur.
⚠ WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	Recommended for optimum use. No risk of personal injury, fire or electric shock.

ABOUT SPURIOUS SIGNALS

Spurious signals may be received near the following frequencies. These are made in the internal circuit and does not indicate a transceiver malfunction:

- 28.671 MHz
- 50.516 MHz
- 51.881 MHz
- 53.246 MHz
- 53.760 MHz

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.

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.

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

• **Advanced manual (English)**
  Instructions for advanced operations in English.

• **Basic manual (Multi-language)**
  Instructions for basic operations in multiple languages.

• **Schematic diagram**
  Includes the schematic and block diagrams.

• **HAM radio Terms (English)**
  A glossary of HAM radio terms in English.

• **Adobe® Acrobat® Reader® Installer**
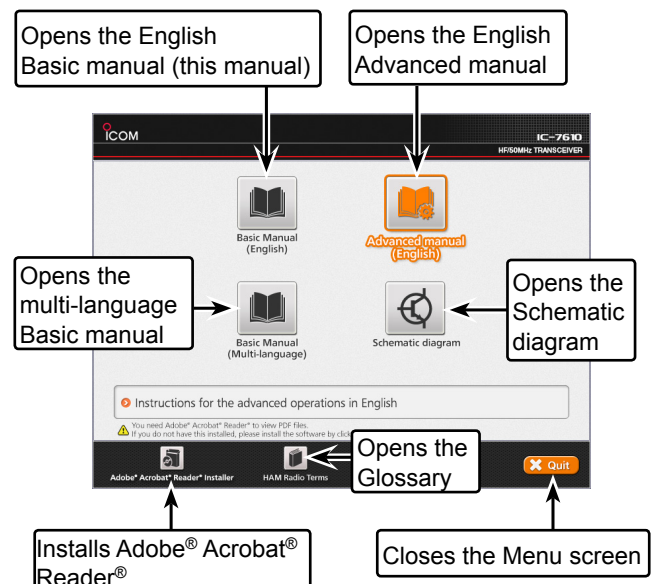 Installer for Adobe® Acrobat® Reader®.

To read the manuals or Schematic diagram, Adobe® Acrobat® Reader® is required. If you have not installed it, please install the Adobe Acrobat 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

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.
   ⓘTo close the Menu screen, click [Quit].

Opens the English Basic manual (this manual)

Opens the English Advanced manual

Opens the multi-language Basic manual

Opens the Schematic diagram

Opens the Glossary

Installs Adobe® Acrobat® Reader®

Closes the Menu screen

ⓘDifferent types of menu screen may be displayed, depending on the transceiver version.

ABOUT THE CONSTRUCTION OF THE MANUAL

There are two different types of manuals for this transceiver, the Basic manual (this manual) and the Advanced manual.

◇ Basic manual (This manual)

Instructions for the basic operations, precautions, installations and connections.

◇ Advanced manual (PDF type)

Instructions for the advanced operations, such as listed below and more...
ⓘThe Advanced manual is on the CD that is supplied with the transceiver, or can be downloaded from the Icom website.
   http://www.icom.co.jp/world/support

• User Band Edge
• IP Plus function
• Main/Sub Band Tracking function
• Adjusting the Drive Gain level
• VOX function
• ⊿TX function
• Operating CW <Advanced>
• Operating RTTY (FSK) and PSK
• Data mode (AFSK) operation
• Scope operation <Advanced>
• Voice Recorder functions
• Voice TX Memory operation
• Using an SD card and USB flash drive <Advanced>
• Memory operation
• Scan
• Set mode <Advanced>
• Clock and Timers <Advanced>
• Updating the firmware
• Replacing fuse
• Cleaning

   And more....

ABOUT THE INSTRUCTIONS

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

MENU » SET > Time Set > **Date/Time**

Instruction example

◇ **Setting the current date**
1. Open the DATE/TIME screen.

   MENU » SET > Time Set > **Date/Time**

2. Touch "Date/Time."
3. Touch "Date."
   • Opens the date editing screen.

Detailed instruction

1. Push MENU.
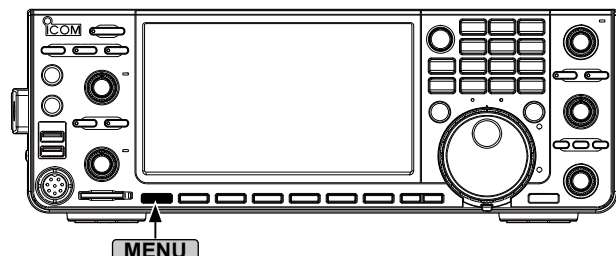
   MENU

   • Opens the MENU screen.
2. Touch [SET].
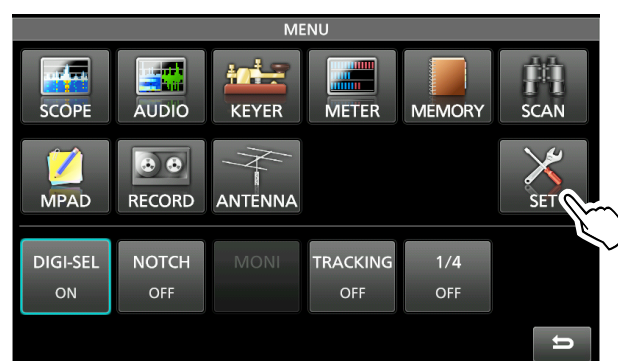
   • Opens the SET screen.
3. Touch "Time Set."
   • Opens the TIME SET screen.
4. Touch "Date/Time."
   • Opens the DATE/TIME screen.
5. Touch "Date."
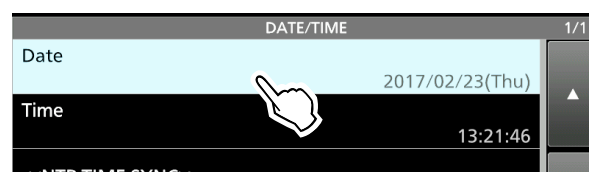
   • Opens the date editing screen.
6. Touch [+] and [-] to set the date.
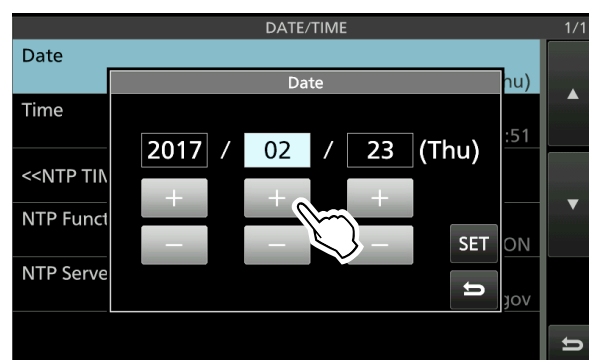
7. Touch [SET] to set the date.
   ⓘTouch ⤴ to cancel.
   • Returns to the previous screen.

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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! NEVER** operate the equipment if you notice an abnormal odor, sound or smoke. Immediately turn OFF the power and/or remove the DC power cable. 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: DO NOT expose the transceiver to rain, snow or any liquids. They could damage the transceiver.

CAUTION: DO NOT change the internal settings of the transceiver. This may reduce transceiver performance and/or damage the transceiver. The transceiver warranty does not cover any problems caused by unauthorized internal adjustments.

CAUTION: DO NOT install the equipment in a place without adequate ventilation, or block any cooling vents on the top, rear, sides or bottom of the transceiver or the cooling fan. Heat dissipation may be reduced and damage the transceiver.

CAUTION: DO NOT use harsh solvents such as benzine or alcohol when cleaning. This could damage the equipment surfaces. If the surface becomes dusty or dirty, wipe it clean with a soft, dry cloth.

CAUTION: DO NOT place or leave the transceiver in areas with temperatures below 0°C (32°F) or above 50°C (122°F).

CAUTION: DO NOT place the transceiver in excessively dusty environments, or in direct sunlight. This could damage the transceiver.

CAUTION: DO NOT set the transceiver's RF output power to more than a connected linear amplifier's maximum input level. Otherwise, the linear amplifier will be damaged.

CAUTION: DO NOT use non-Icom microphones. Other microphones have different pin assignments and may damage the transceiver.

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

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

Turn OFF the transceiver's power and 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.

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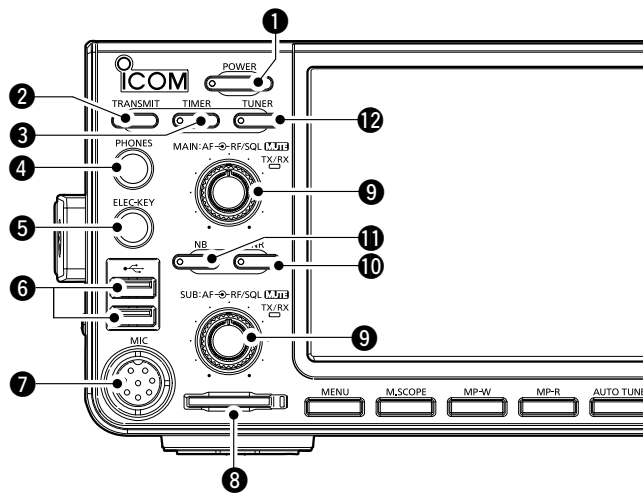
❶ **POWER KEY** `POWER` **(p. 3-1)**
Turns the transceiver ON or OFF.

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

The TX/RX indicator
• Lights green while receiving.
• Lights red while transmitting.

❸ **TIMER KEY** `TIMER`
Turns the Sleep Timer or Daily Timer function ON or OFF.

❹ **HEADPHONE JACK [PHONES] (p. 13-3)**
Connects to standard stereo headphones.

❺ **ELECTRONIC KEYER JACK [ELEC-KEY] (p. 13-3)**
Connects to a paddle to use the internal electronic keyer for the CW operations.

❻ **USB PORT [USB A] (p. 13-4)**
Insert a USB flash drive, USB A type keyboard, RC-28 REMOTE ENCODER, mouse or hub.

❼ **MICROPHONE CONNECTOR [MIC] (p. 13-3)**
Connects to the supplied or an optional microphone.

❽ **SD CARD SLOT [SD CARD] (p. 6-1)**
Accepts an SD card. The indicator next to the slot lights blue when inserted.

❾ **VOLUME CONTROL** `AF◦RF/SQL` **(p. 3-1)**
ⓘ The upper control is for the Main band, and the lower control is for the Sub band.
• Push to turn the Mute function ON or OFF.
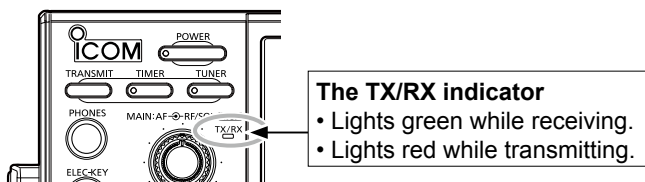 - The TX/RX indicator lights orange when the Mute function is ON.
• Adjusts the audio output level.
RF GAIN/SQUELCH CONTROL `AF◦RF/SQL` **(p. 3-7)**
Adjusts the RF gain and squelch threshold levels.

❿ **NOISE REDUCTION KEY** `NR` **(p. 4-5)**
Turns the Noise Reduction function ON or OFF.

⓫ **NOISE BLANKER KEY** `NB` **(p. 4-5)**
Turns the Noise Blanker ON or OFF.

⓬ **ANTENNA TUNER KEY** `TUNER` **(p. 7-3)**
Turns the antenna tuner ON or OFF, or activates the tuner.
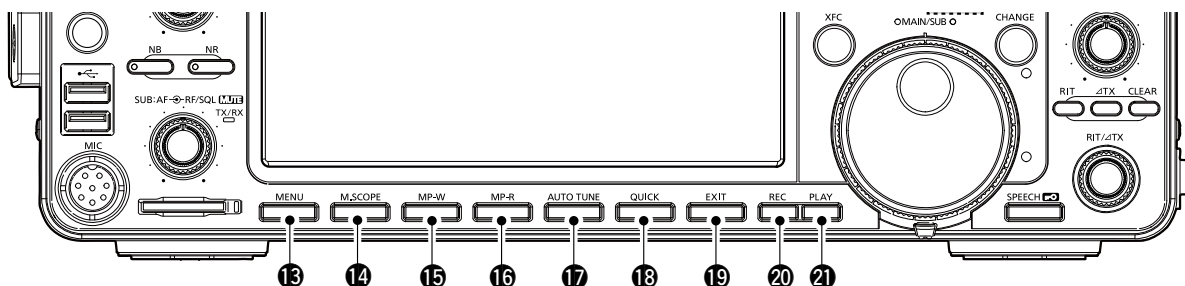
⓭ **MENU KEY** `MENU` **(p. 8-1)**
Displays the MENU screen.

⓮ **MINI SCOPE KEY** `M.SCOPE` **(p. 5-2)**
Displays the Mini Scope or Spectrum Scope.

⓯ **MEMO PAD WRITE KEY** `MP-W`
Saves the displayed contents into the Memo Pad.

⓰ **MEMO PAD READ KEY** `MP-R`
Sequentially calls up the contents in the Memo Pad.

⓱ **AUTO TUNE KEY** `AUTO TUNE` **(p. 4-8)**
Automatically tunes the operating frequency to a received CW signal.

⓲ **QUICK KEY** `QUICK` **(p. 1-7)**
Displays the QUICK MENU.

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Front panel (Continued)

⑲ **EXIT KEY** `EXIT`
Exits a setting screen or returns to the previous screen.

⑳ **VOICE MEMORY RECORD KEY** `REC`
Saves the previously received signal for the preset time period set in REC Time, using the Instant Replay function, or starts recording a QSO audio onto an SD card.

㉑ **VOICE MEMORY PLAY BACK KEY** `PLAY`
Plays back the last 5 seconds of the Instant Replay memory, or all of the Instant Replay memory.

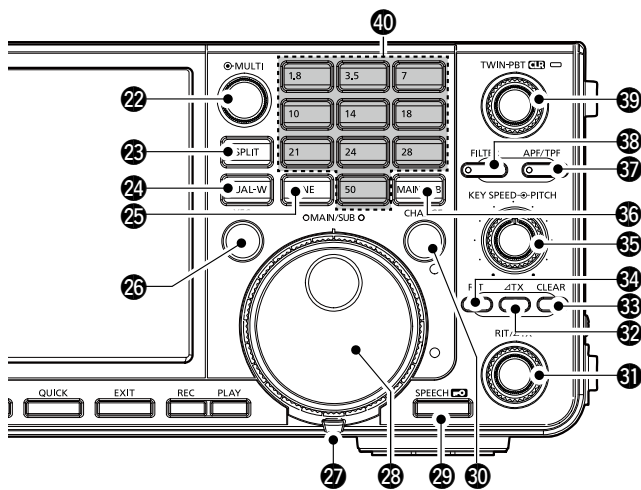㉒ **MULTI-FUNCTION CONTROL** `⊙MULTI` (p. 1-6)
Displays the Multi-function menu for various adjustments, or selects an item.

㉓ **SPLIT KEY** `SPLIT` (p. 4-9)
Turns the Split function ON or OFF.

㉔ **DUALWATCH KEY** `DUAL-W` (p. 3-2)
Turns the Dualwatch function ON or OFF.

㉕ **GENERAL COVERAGE BAND KEY** `GENE`
Selects the general coverage band.

㉖ **TRANSMIT FREQUENCY CHECK KEY** `XFC`
(p. 4-1, 4-9, 4-10)
Enables you to monitor the transmit frequency while holding it down in the Split mode.

㉗ **TENSION ADJUSTER**
Adjusts the friction of `MAIN DIAL`.

㉘ **MAIN DIAL** `MAIN DIAL` (p. 3-4)
Changes the operating frequency.

㉙ **SPEECH/LOCK KEY** `SPEECH⊷`
• Announces the operating frequency and mode by pushing this key.
• Electronically locks `MAIN DIAL` by holding down this key for 1 second.

㉚ **MAIN/SUB CHANGE KEY** `CHANGE` (p. 3-2)
Toggles the frequency, mode and selected memory channel between the Main and Sub band.

㉛ **RIT/⊿TX CONTROL** `RIT/⊿TX` (p. 4-1)
Shifts the receive or transmit frequency up to ±9.99 kHz without changing the transmit or receive frequency.

㉜ **⊿TX KEY** `⊿ TX`
Turns the ⊿TX function ON or OFF.

㉝ **CLEAR KEY** `CLEAR`
Clears the RIT or ⊿TX shift frequency.

㉞ **RIT KEY** `RIT` (p. 4-1)
Turns the Receiver Incremental Tuning (RIT) function ON or OFF.

㉟ **KEY SPEED** `KEY SPEED⊷PITCH` **CONTROL** (p. 4-11)
Adjusts the internal electronic CW keyer speed.
CW PITCH `KEY SPEED⊙PITCH` **CONTROL** (p. 4-10)
Shifts the received CW audio pitch and the CW side tone pitch without changing the operating frequency.

㊱ **MAIN/SUB ACCESS KEY** `MAIN/SUB` (p. 3-2)
Selects the Main or Sub band frequency readout.
• The selected band's frequency is displayed clearly whereas the non-selected band's frequency is displayed in gray.

㊲ **AUDIO PEAK FILTER/**
TWIN PEAK FILTER KEY `APF/TPF` (p. 4-12)
In the CW mode, turns the Audio Peak Filter ON or OFF, and in the RTTY mode, turns the Twin Peak Filter ON or OFF.

㊳ **FILTER KEY** `FILTER` (p. 4-4)
Selects one of three IF filters.

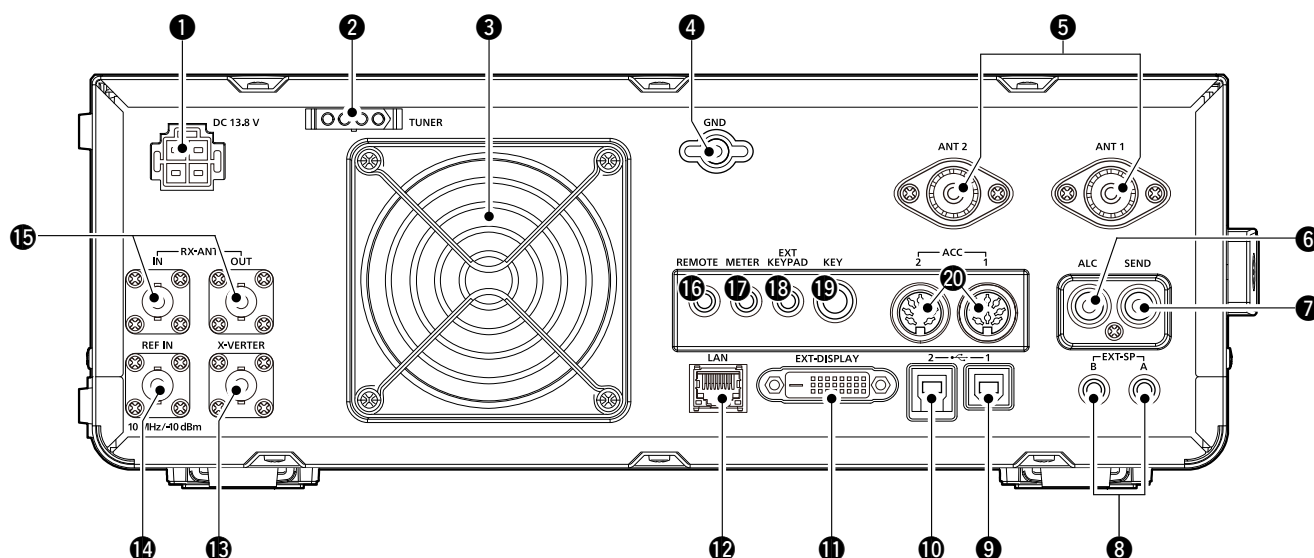㊴ **TWIN PASSBAND TUNING CONTROL** `TWIN PBT CLR`
(p. 4-3)
Adjusts the IF filter's passband width.

㊵ **KEYPAD** `1.8` ~ `50`
Selects the operating band by pushing once, or call up other stacked frequencies by pushing the same key several times.

Rear panel

❶ **DC POWER SOCKET [DC 13.8 V]**
Connects to 13.8 V DC through the DC power cable.

❷ **TUNER CONTROL SOCKET [TUNER]**
Accepts the control cable from an optional AH-4 or AH-740 AUTOMATIC ANTENNA TUNER.

❸ **COOLING FAN**
Cools the PA unit when necessary.

❹ **GROUND TERMINAL [GND]**
Connects to ground to prevent electrical shocks, TVI, BCI and other problems.

❺ **ANTENNA CONNECTOR [ANT1]/[ANT2]**
Connects to a 50 Ω antenna. If you use the AH-4 or AH-740, you must connect the antenna to [ANT1].

❻ **ALC INPUT JACK [ALC]**
Connects to the ALC output jack of a non-Icom linear amplifier.

❼ **SEND CONTROL JACK [SEND]**
Connects to control transmit with non-Icom external units.

❽ **EXTERNAL SPEAKER JACK A/B [EXT-SP]**
Accepts a 4 ~ 8 Ω external speaker.

❾ **USB PORT [USB 1]** (Type B)
Connects to a PC for remote control operations.

❿ **USB PORT [USB 2]** (Type B)
For digital data input or output.

⓫ **EXTERNAL DISPLAY CONNECTOR [EXT-DISPLAY]**
Connects to an external display monitor.

⓬ **ETHERNET CONNECTOR [LAN]**
Connects to a PC network through a LAN.

⓭ **TRANSVERTER CONNECTOR [X-VERTER]**
Connects to an external transverter for input/output.

⓮ **REFERENCE SIGNAL INPUT [REF IN]**
Input for a 10 MHz reference signal through the BNC connector.

⓯ **RECEIVE ANTENA [RX ANT–IN]/[RX ANT–OUT]**
Connects to an external unit, such as preamplifier or RF filter, using BNC connectors.
• This is located between the transmit/receive switching circuit and receiver's RF stage.

⓰ **CI-V REMOTE CONTROL JACK [REMOTE]**
Connects to a PC or other transceiver for remote control.

⓱ **METER JACK [METER]**
Outputs received signal strength, transmit output power, VSWR, ALC, speech compression, V_D or I_D levels for an external meter.

⓲ **EXTERNAL KEYPAD JACK [EXT KEYPAD] (p. 13-4)**
Connects to an external keypad for direct voice memory, memory keyer, RTTY memory or PSK memory transmission.

⓳ **STRAIGHT KEY JACK [KEY]**
Connects to a straight key or external electronic keyer with 1/4 inch standard plug.

⓴ **ACC SOCKET [ACC1]/[ACC2]**
Connects to devices to control an external unit or to control the transceiver.

Count on us!