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 RADIO TELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.
FOREWORD

Thank you for purchasing this Icom product. The IC-P7A VHF/UHF DUALBAND FM TRANSCEIVER is designed and built with Icom’s superior technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

We want to take a couple of moments of your time to thank you for making your IC-P7A your radio 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-P7A.

FEATURES

▪ Covers the 0.495–999.990 MHz* frequency range  
  *Some frequency bands are disabled according to version

▪ CTCSS and DTCS encoder/decoder standard

▪ 1250 memory channels* with 18 banks available  
  *200 auto write and 50 scan edge channels are included.

▪ 1800 mAh large capacity Li-Ion battery standard

IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL—This instruction manual contains important operating instructions for the IC-P7A.

EXPLICIT DEFINITIONS

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

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PRECAUTION

⚠️ WARNING RF EXPOSURE! This device emits Radio Frequency (RF) energy. 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 hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting. The transceiver will perform best if the microphone is 5 to 10 cm (2 to 4 inches) away from the lips and the transceiver is vertical.

⚠️ WARNING! NEVER operate the transceiver with a earphone, headphones or other audio accessories at high volume levels. Hearing experts advise against continuous high volume operation. If you experience a ringing in your ears, reduce the volume level or discontinue use.

⚠️ WARNING! NEVER operate the transceiver while driving a vehicle. Safe driving requires your full attention—anything less may result in an accident.

NEVER expose the transceiver to rain, snow or any liquids. The transceiver may be damaged.

NEVER operate or touch the transceiver with wet hands. This may result in an electric shock or damage the transceiver.

DO NOT push the PTT when not actually desiring to transmit.

AVOID using or placing the transceiver in direct sunlight or in areas with temperatures below −10°C (+14°F) or above +60°C (+140°F).

Place the unit in a secure place to avoid inadvertent use by children.

AVOID the use of chemical agents such as benzine or alcohol when cleaning, as they can damage the transceiver’s surfaces.

For U.S.A. only

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

1 Battery pack (BP-243) ......................................................1
2 Battery charger (BC-164) .....................................................1
3 Antenna .............................................................................1
4 Handstrap ........................................................................1
5 AC adapter* (BC-145LA/LE/LV) ........................................1
(The shape of the BC-145LA, BC-145LE and BC-145LV are different.)
*Depending on versions. Not supplied with some versions.

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■ Preparation

◊ Battery installation
  1. Remove the battery cover from the transceiver.
  2. Install the BP-243 (Li-Ion battery pack).
     • Be sure to observe the correct polarity.
  3. Replace the battery cover to the transceiver.
  4. Keep the battery contacts clean. It's a good idea to clean
      the battery terminals once a week.

◊ Antenna
  Insert the supplied antenna into the
  antenna connector and screw down the antenna as shown at right.
  NEVER hold the antenna when carrying the transceiver.
  Keep the jack cover attached when jack is not in use to protect the con-
  nector from dust and moisture.

✔ For your information
  Third-party antennas may increase transceiver perfor-
  mance. An optional AD-92SMA ANTENNA CONNECTOR
  ADAPTER is available to connect an antenna with a BNC
  connector.

◊ Handstrap
  Slide the handstrap through the loop on the top of the rear panel as
  illustrated at right. Facilities carry-
QUICK REFERENCE GUIDE

Charging the battery

![Diagram showing the charging process]

Charging description

1. Plug the AC adapter into an AC outlet; or the optional CP-21LR into a cigarette lighter socket.
2. Insert the adapter plug into [12~16V DC INPUT] of the BC-164 BATTERY CHARGER.
3. Install the BP-243 BATTERY PACK (See left page) to the transceiver.
4. Be sure to turn OFF the transceiver, then charge the battery with transceiver.
   - Takes approximately 3 hours for fully charge with the supplied BP-243 battery pack.
   - Charging indicator of BC-164 lights or blinks as follows.

<table>
<thead>
<tr>
<th>Charging indicator status</th>
<th>Charging status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lights orange</td>
<td>Charging</td>
</tr>
<tr>
<td>Lights green</td>
<td>Charging is completed</td>
</tr>
<tr>
<td>Blinking red</td>
<td>Charging error*</td>
</tr>
</tbody>
</table>

* It may be charging outside of the specified temperature range: +5°C to +35°C (+41°F to +95°F). Restore the specified temperature range and reinsert the transceiver.

NOTE: The transceiver has battery indicator to show the following information.

- No indicator appears when the installed battery pack has ample capacity.
- “ ” (battery indicator) appears when the battery pack is nearing exhaustion.
- “ ” blinks when the battery pack must be charged.
- “ ” and “LOW” indicator appear just before the battery pack is completely discharged and display turns OFF.
QUICK REFERENCE GUIDE

■ Your first contact

Now that you have your IC-P7A ready, you are probably excited to get on the air. We would like to take you through a few basic steps to make your first experience “On The Air” enjoyable.

◇ About default settings

The [DIAL] control function can be exchanged with the [△]/[▼] key functions by pushing and holding [FUNC] then push [△] or [▼]. However, in this QUICK REFERENCE GUIDE, the factory default setting ([DIAL] sets operating frequency) is used to simplify the instructions.

◇ Basic operation

1. Turning ON the transceiver

⇒ Push and hold [PWR] for 1 sec. to turn the power ON.
   • Opening indication passes through, then frequency indication appears.

2. Adjusting audio level

⇒ Push [△]/[▼] to set the desired audio level.

3. Adjusting squelch level

⇒ While pushing and holding [SQL] (ATT•SET), rotate [DIAL] to set the squelch level.
4. Tune the desired frequency

The tuning dial will allow you to dial in the frequency you want to use. Pages 11 and 17 will instruct you on how to set the tuning step size.

1. Push [BAND] (TS•LOCK) several times to select the desired frequency band.
   • While pushing and holding [BAND] (TS•LOCK), rotating [DIAL] also selects frequency band.

2. Rotate [DIAL] to set the desired frequency.
   • While pushing and holding [FUNC], rotate [DIAL] to select frequency in 1 MHz steps.

5. Operating mode selection

⇒ While pushing and holding [FUNC], push [CALL] (MODE•SCAN) several times to select the desired operating mode.
   • FM, WFM and AM modes are selectable.

6. Transmit and receive

⇒ Push and hold [PTT] to transmit then speak into the microphone; release to receive.
   • Transmission is available on the 144 MHz/440 MHz (FM mode) amateur bands only.
Repeater operation

1. Setting duplex

① While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
② Rotate [DIAL] to select “DUP.”
③ While pushing and holding [FUNC], rotate [DIAL] to select minus duplex or plus duplex.
   • The USA/KOREA versions have an auto repeater function, therefore setting duplex is not required.

④ Push [SQL] (ATT•SET) to exit set mode.

2. Repeater tone

① While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
② Rotate [DIAL] to select “T/TSQL.”
③ While pushing and holding [FUNC], rotate [DIAL] to select the repeater tone activation.

④ Push [SQL] (ATT•SET) to exit set mode.
Memory programming

The IC-P7A has a total of 1250 memory channels (including 200 auto write channels and 50 scan edges) for storing often used operating frequency, mode, etc.

1. Setting frequency

In *VFO mode*, set the desired receive frequency mode.
- When “AIR” indicator is displayed, push [V/M] (SKIP•S.MW) to select the *VFO mode*.

2. Selecting a memory channel

Push [V/M] (SKIP•S.MW) for 1 sec. to enter *select memory write mode* (1 short and 1 long beep sound), then rotate [DIAL] to select the desired memory channel.
- “AIR” indicator and memory channel number blink.

3. Writing a memory channel

Push and hold [V/M] (SKIP•S.MW) for 1 sec. until 3 beeps sound.
- Memory channel number automatically increases when continuing to push [V/M] (SKIP•S.MW) after programming.

• To cancel and exit *select memory write mode*, push [V/M] (SKIP•S.MW) momentarily.
Programmed scan operation

50 channels of memories in 25 pairs are used to specify scanning ranges for programmed scan operation. The programmed scan scans between “xxA” and “xxb” (xx=00 to 24) channels. Therefore, before operating the programmed scan, different frequencies must be programmed into the “A” and “b” channels.

Programming scan edges

A start and stop frequency must be programmed into a pair of "xxA" or "xxb" channels.

1. Setting frequency

In VFO mode, set the desired operating frequency and mode.
• When “MR” indicator is displayed, push [V/M] (SKIP•S.MW) to select the VFO mode.

2. Selecting a scan edge channel “A”

Push and hold [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode (1 short and 1 long beep sound), then rotate [DIAL] to select the desired scan edge channel “A.”
• “MR” indicator and scan edge channel number blink.

3. Writing a memory channel

Push and hold [V/M] (SKIP•S.MW) for 1 sec. until 3 beeps sound.
• Scan edge channel “b” is automatically selected when continuing to push [V/M] (SKIP•S.MW) after programming.
• After programming is completed, the display returns to VFO indication.

4. Selecting a scan edge channel “b”

Push and hold [V/M] (SKIP•S.MW) for 1 sec., then rotate [DIAL] to select the desired scan edge channel “b.”
• “MR” indicator and scan edge channel number blink.
• When the scan edge channel “b” is already selected at step 3, continuing to push [V/M] (SKIP•S.MW) after programming, skip this step.

5. Writing a memory channel

Push and hold [V/M] (SKIP•S.MW) for 1 sec. until 3 beeps sound.
• The next scan edge channel “A” is automatically selected when continuing to push [V/M] (SKIP•S.MW) after programming.
• After programming is completed, the display returns to VFO indication.
Starting scan
1. Select VFO mode.
Push [V/M] (SKIP•S.MW) to select the VFO mode for full, band and programmed scan operation.
• Select memory mode by pushing [V/M] (SKIP•S.MW) again for memory or bank scan.

2. Selecting a scanning type
Push and hold [CALL] (MODE•SCAN) for 1 sec., then rotate [DIAL] to select the desired scanning type.
• Available scan types when VFO mode is selected; “ALL” for full scan; “BAND” for the selected band; one of “PROGxx” (xx=0 to 24) for programmed scan.
• Available scan types when memory mode is selected; “M ALL” for all memory scan “B ALL” for all bank scan, “B LINK” for bank link scan, “BANK” for the selected bank scan.

Scan type indication examples

3. Starting scan
Push [CALL] (MODE•SCAN) to start the scan.
• Rotate [DIAL] to change the scanning direction.

4. Cancelling scan
Push [CALL] (MODE•SCAN) again to stop scan.

✔ For your information
The memory channel number you program the scan edges into correlate “PROGxx” as follows:
00A/00b: Select “PROG 00” to scan between frequencies programmed in 00A and 00b channels.
01A/01b: Select “PROG 01” to scan between frequencies programmed in 01A and 01b channels.
••••
24A/24b: Select “PROG 24” to scan between frequencies programmed in 24A and 24b channels.
## Front, top and side panels

1. **ANTENNA CONNECTOR** (p. 1)
   - Connects to the supplied antenna.
   - An optional AD-92SMA adapter (p. 77) is available for connecting an antenna with a BNC connector.

2. **EXTERNAL SPEAKER/MICROPHONE JACK [MIC/SP]**
   - Connect an optional speaker-microphone or headset via an optional OPC-782 PLUG ADAPTOR CABLE, if desired.
   - The internal microphone and speaker will not function when the OPC-782 is connected. (See p. 77 for a list of available options.)
   - An optional HM-153P TIE-PIN MICROPHONE can be connected to the IC-P7A directly (without the OPC-782).

3. **PTT SWITCH [PTT]** (p. 16)
   - Push and hold to transmit, release to receive.
   - While pushing and holding [FUNC], push to toggle the transmit output power between High and Low.

4. **FUNCTION KEY [FUNC]**
   - Push and hold this key for access to secondary functions.

5. **UP/DOWN KEYS [▲]/[▼]**
   - Adjusts audio volume level.* (p. 13)
   - While pushing and holding [FUNC], push either key to exchange [DIAL] and [▲]/[▼] function. (p. 18)

---

*The function of [DIAL] and [▲]/[▼] can be exchanged. See page 18 for details.*
**CALL•MODE•SCAN KEY [CALL] (MODE•SCAN)**
- Push momentarily to select the call channel. (p. 12)
- Push and hold for 1 sec. to enter the scan type selection condition, push again to start a scan. (p. 35)
- While pushing and holding [FUNC], push momentarily to select the operating mode. (p. 14)
- While pushing and holding [FUNC], push and hold for 1 sec. to start a tone scan. (p. 48)

**VFO/MEMORY•MEMORY WRITE KEY [V/M] (SKIP•S.MW)**
- Push momentarily to toggle between VFO and memory mode. (p. 9)
- Push and hold for 1 sec. to enter select memory write mode. (p. 24)
- While pushing and holding [FUNC], push momentarily to select scan skip condition. (p. 40)
- During VFO scan, pushing and holding [FUNC], push and hold for 1 sec. to store into highest blank memory channel as PSKIP channel (p. 40)

**SQUELCH•ATTENUATOR•SET KEY [SQL] (ATT•SET)**
- Push and hold to open the squelch temporarily and monitor the operating frequency. (p. 15)
- While pushing and holding this key, rotate [DIAL] to adjust the squelch level. (p. 14)
- While pushing and holding [FUNC], push and hold for 1 sec. to enter set mode. (p. 49)

**POWER KEY [PWR]**
Push and hold for 1 sec. to turn the transceiver power ON and OFF.

**BAND•TUNING STEP•LOCK KEY [BAND] (TS•LOCK)**
- Push to select the operating frequency band. (p. 9)
- While pushing and holding [FUNC], push momentarily to enter tuning step set mode. (p. 11)
- While pushing and holding [FUNC], push and hold for 1 sec. to toggle the lock function ON and OFF. (p. 18)

**TX RX INDICATOR [TX/RX] (pgs. 13, 16)**
Lights green while receiving a signal or when the squelch is open; lights red while transmitting.

**CONTROL DIAL [DIAL]**
- Rotate to select the operating frequency.* (p. 11)
- While scanning, changes the scanning direction.* (p. 35)
- While pushing and holding [SQL] (ATT•SET), sets the squelch level.* (p. 14)
- While pushing and holding [FUNC], changes the operating frequency in 100 kHz, 1 MHz or 10 MHz increments in VFO mode.* (p. 11)
- While pushing and holding [FUNC], changes the memory channel in 10 channels steps in memory mode.* (p. 12)
- While pushing and holding [BAND] (TS•LOCK), selects the operating band in VFO mode.* (p. 9)
- While pushing and holding [BAND] (TS•LOCK), selects the programmed bank or auto memory write channel in memory mode.* (p. 9)
1 PANEL DESCRIPTION

Function display

1 FREQUENCY READOUT
Displays a variety of information, such as an operating frequency, set mode contents, memory names.
• The smaller "75," "50" and "25" on the right of the readout indicate 0.75, 0.5 and 0.25 kHz, respectively.
• The decimal point blinks during scan.

2 DIAL/VOLUME EXCHANGE INDICATOR (p. 18)
Appears when the function of [DIAL] and [△]/[▼] are exchanged.

3 BATTERY INDICATOR
⇒ No indicator appears when the installed battery pack has ample capacity.
⇒ " ” (battery indicator) appears when the battery pack is nearing exhaustion.
⇒ " ” blinks when the battery pack must be charged.
⇒ " ” and "LOW" indicator appear just before the battery pack is completely discharged and display turns OFF.
4 PRIORITY WATCH INDICATOR (p. 43)
Appears when priority watch is in use.

5 LOW POWER INDICATOR (p. 16)
➥ “LOW” appears when the low output power is selected.
➥ No indicator appears when the high output power is selected.

6 S/RF METER
➥ Shows the relative signal strength while receiving signals. (p. 13)
➥ Shows the output power level while transmitting. (p. 16)

7 SKIP INDICATORS (p. 39)
➥ “SKIP” appears when the selected memory channel is set as a skip channel.
➥ “PSKIP” appears when the displayed frequency is set as a skip frequency.

8 MEMORY CHANNEL NUMBER INDICATOR
➥ Shows the selected memory channel number. (pgs. 12, 24)
➥ “C” appears when the call channel is selected. (p. 12)
➥ “L” appears when the lock function is active. (p. 18)

9 MEMORY INDICATOR (pgs. 12, 24)
Appears when memory mode is selected.

10 AUTO WRITE CHANNEL INDICATOR (p. 38)
Appears when auto write channel is selected.

11 ATTENUATOR INDICATOR (p. 15)
Appears when the RF attenuator is in use.

12 TONE INDICATORS
➥ “T” appears while the subaudible tone encoder is in use. (p. 21)
➥ “T SQL” appears while the tone squelch function is in use. (p. 45)
➥ “DTCS” appears while the DTCS squelch function is in use. (p. 45)
➥ “(••)” appears with the “T SQL” or “DTCS” indicator while the pocket beep function (with CTCSS or DTCS) is in use. (p. 45)

13 DUPLEX INDICATORS (p. 19)
“DUP” appears when plus duplex, “–DUP” appears when minus duplex (repeater operation) is selected.

14 OPERATING MODE INDICATOR (p. 14)
Shows the selected operating mode.
• FM, WFM and AM are available.


BATTERY CHARGING

Caution

Misuse of LiTHIUM-ion batteries may result in the following hazards: smoke, fire, or the battery may rupture. Misuse can also cause damage to the battery or degradation of battery performance.

- ▲ DANGER! Use and charge only specified Icom battery packs with Icom radios. Only Icom battery packs are tested and approved for use with Icom radios. Using third-party or counterfeit battery packs may cause smoke, fire, or cause the battery to burst.

Battery caution

- ▲ DANGER! DO NOT hammer or otherwise impact the battery. Do not use the battery if it has been severely impacted or dropped, or if the battery has been subjected to heavy pressure. Battery damage may not be visible on the outside of the case. Even if the surface of the battery does not show cracks or any other damage, the cells inside the battery may rupture or catch fire.

- ▲ DANGER! NEVER use or leave battery pack in areas with temperatures above +60°C (+140°F). High temperature buildup in the battery, such as could occur near fires or stoves, inside a sun heated car, or in direct sunlight may cause the battery to rupture or catch fire. Excessive temperatures may also degrade battery performance or shorten battery life.

- ▲ DANGER! DO NOT expose the battery to rain, snow, seawater, or any other liquids. Do not charge or use a wet battery. If the battery gets wet, be sure to wipe it dry before using. The battery by itself is not waterproof.

- ▲ DANGER! NEVER incinerate used battery pack since internal battery gas may cause it to rupture, or may cause an explosion.

- ▲ DANGER! NEVER solder the battery terminals. This may cause heat generation, and the battery may burst, emit smoke or catch fire.

- ▲ DANGER! Use the battery only with the transceiver for which it is specified. Never use a battery with any other equipment, or for any purpose that is not specified in this instruction manual.

- ▲ DANGER! If fluid from inside the battery gets in your eyes, blindness can result. Rinse your eyes with clean water, without rubbing them, and see a doctor immediately.

- WARNING! Immediately stop using the battery if it emits an abnormal odor, heats up, or is discolored or deformed. If any of these conditions occur, contact your Icom dealer or distributor.

- WARNING! Immediately wash, using clean water, any part of the body that comes into contact with fluid from inside the battery.
• **WARNING! NEVER** put the battery in a microwave oven, high-pressure container, or in an induction heating cooker. This could cause a fire, overheating, or cause the battery to rupture.

• **CAUTION!** Always use the battery within the specified temperature range for the transceiver (–10°C to +60°C; +14°F to +140°F) and the battery itself (–20°C to +60°C; –4°F to +140°F). Using the battery out of its specified temperature range will reduce the battery’s performance and battery life. Please note that the specified temperature range of the battery may exceed that of the transceiver. In such cases, the transceiver may not work properly because it is out of its operating temperature range.

• **CAUTION!** Shorter battery life could occur if the battery is left fully charged, completely discharged, or in an excessive temperature environment (above +50°C; +122°F) for an extended period of time. If the battery must be left unused for a long time, it must be detached from the radio after discharging. You may use the battery until the battery indicator shows half-capacity, then keep it safely in a cool dry place with the temperature between –20°C to +20°C (–4°F to +68°F).

---

**Charging caution**

• **DANGER! NEVER** charge the battery pack in areas with extremely high temperatures, such as near fires or stoves, inside a sun heated car, or in direct sunlight. In such environments, the safety/protection circuit in the battery will activate, causing the battery to stop charging.

• **WARNING! DO NOT** charge or leave the battery in the battery charger beyond the specified time for charging. If the battery is not completely charged by the specified time, stop charging and remove the battery from the battery charger. Continuing to charge the battery beyond the specified time limit may cause a fire, overheating, or the battery may rupture.

• **WARNING! NEVER** insert the transceiver (battery attached to the transceiver) into the charger if it is wet or soiled. This could corrode the battery charger terminals or damage the charger. The charger is not waterproof.

• **CAUTION! DO NOT** charge the battery outside of the specified temperature range: +5°C to +35°C (+41°F to +95°F). Icom recommends charging the battery at +20°C (+68°F). The battery may heat up or rupture if charged out of the specified temperature range. Additionally, battery performance or battery life may be reduced.
2 BATTERY CHARGING

Battery installation

Before installing, or replacing the battery pack, be sure to turn OFF the transceiver. If it’s ON, push and hold [PWR] for 1 sec. to turn the power OFF.

1. Remove the battery cover from the transceiver.

2. Install the BP-243 (Li-Ion battery pack).
   • Be sure to observe the correct polarity.

3. Replace the battery cover to the transceiver.

Keep the battery contacts clean to avoid rust or poor contact. It’s a good idea to clean the battery terminals once a week.
Battery charging

Charging connections

- Charge periods: Approx. 3 hours

Charging description

1. Plug the AC adapter into an AC outlet; or the optional CP-21LR into a cigarette lighter socket.
2. Insert the adapter plug into [12~16V DC INPUT] of the BC-164 BATTERY CHARGER.
3. Install the BP-243 BATTERY PACK (See left page) in the transceiver.
4. Be sure to turn OFF the transceiver, then charge the battery with transceiver.
   - Takes approximately 3 hours to fully charge with the supplied BP-243 battery pack.

Charging indicator of BC-164

- Orange (lights): During charging.
- Green (lights): When the battery pack is charged completely.
- Red (blinking): The charger may be outside of the specified temperature range: +5°C to +35°C (+41°F to +95°F). Restore the specified temperature range and reinsert the transceiver or contact your dealer.

CAUTION: BE SURE to disconnect the CP-21LR from the cigarette lighter socket when charging is finished, because, a slight current still follows in the CP-21LR and the vehicle’s battery will become will be drained.
**VFO and memory channels**

The IC-P7A has two primary operating modes: **VFO mode** and **memory mode**.

**VFO mode** is used for setting the desired frequency within the frequency coverage.
- Push [V/M] (SKIP•S.MW) to select **VFO mode**.

**Memory mode** is used for operating from memory channels which have programmed frequencies.
- Push [V/M] (SKIP•S.MW) to select **memory mode**.
  - See p. 24 for memory programming details.

---

**Operating band selection**

The transceiver can receive the AM broadcast, HF band, 50 MHz, FM broadcast, VHF air, 144 MHz, 300 MHz, 400 MHz, 600 MHz, *800 MHz, television channels or †Weather channels.

- Available frequency bands are differ depending on version. See the specification for details. (p. 75)
- *Some frequency ranges are inhibited for the USA version due to local regulation.
- †Available for the USA version only.

- Push [BAND] (TS•LOCK) several times to select the desired frequency band.
  - When **memory mode** is selected, push [V/M] (SKIP•S.MW) to select **VFO mode** first.
  - While pushing and holding [BAND] (TS•LOCK), rotating [DIAL] also selects frequency band.

---

**What is VFO?**

VFO is an abbreviation of Variable Frequency Oscillator. Frequencies for receiving or transmitting are selected and controlled by the VFO.
• Available frequency bands

- AM broadcast band
- HF band
- 50 MHz band
- FM broadcast band
- AM broadcast band
- Weather channels*
- TV channels†
- 800 MHz band
- 600 MHz band
- 400 MHz band
- 300 MHz band
- 144 MHz band
- VHF air band

Initial frequencies shown differ according to version.
*Available for the USA version only
†Appears only when TV channels are programmed using the optional CS-P7.
3  FREQUENCY AND CHANNEL SETTING

■ Setting a frequency

1. Push [V/M] (SKIP•S.MW) to select VFO mode, if necessary.
2. Select the desired frequency band with [BAND] (TS•LOCK).
   • Or, while pushing and holding [BAND] (TS•LOCK), rotate [DIAL] to select the desired frequency band.
3. Rotate [DIAL] to select the desired frequency.
   • The frequency changes according to the preset tuning steps. See the section at right for setting the tuning step.
   • While pushing and holding [FUNC], rotate [DIAL] to change the frequency in 1 MHz steps (default).

■ Setting a tuning step

The tuning step can be selected for each frequency band. The following tuning steps are available for the IC-P7A.

- 5.0 kHz*
- 6.25 kHz*
- 8.33 kHz†
- 9.0 kHz‡
- 10.0 kHz
- 12.5 kHz
- 15.0 kHz
- 20.0 kHz
- 25.0 kHz
- 30.0 kHz
- 50.0 kHz
- 100.0 kHz
- 200.0 kHz

* Appears for below the 500 MHz bands only.
† Appears for the VHF air band only.
‡ Appears for the AM broadcast band only.

◆ Tuning step selection

1. Push [V/M] (SKIP•S.MW) to select VFO mode, if necessary.
2. Push [BAND] (TS•LOCK) several times to select the desired frequency band.
   • Or, while pushing and holding [BAND] (TS•LOCK), rotate [DIAL] to select the desired frequency band.
3. While pushing and holding [FUNC], push [BAND] (TS•LOCK) momentarily to enter tuning step set mode.
4. Rotate [DIAL] to select the desired tuning step.
5. Push [BAND] (TS•LOCK) to return to VFO mode.

The 1 MHz tuning step (dial select step) can be set to 100 kHz, 1 MHz or 10 MHz tuning steps in set mode. See p. 17 for details.
### Selecting a memory channel

1. Push [V/M] (SKIP•S.MW) momentarily to select memory mode.
   - “MW” appears when a memory channel is selected.
2. Rotate [DIAL] to select the desired memory channel.
   - Only programmed memory channels can be selected.
   - While pushing and holding [FUNC], rotate [DIAL] to select a memory channel in 10 channel steps, blank channels can be selected in this case.

### Selecting a call channel

1. Push [CALL] (MODE•SCAN) momentarily to select a call channel.
2. Rotate [DIAL] to select the desired call channel.
3. Push [CALL] (MODE•SCAN) or [V/M] (SKIP•S.MW) momentarily to return to the previously selected mode.

- **Call channel example (depends on version)**

<table>
<thead>
<tr>
<th>144 MHz band</th>
<th>440 MHz band</th>
</tr>
</thead>
<tbody>
<tr>
<td>146.0 10</td>
<td>440.000</td>
</tr>
</tbody>
</table>
### Receiving

Make sure charged battery pack (BP-243) is installed (p. 7).

1. Push and hold [PWR] for 1 sec. to turn power ON.
2. Push [▲] or [▼] to set the desired audio level.
   - The frequency display shows the volume level while setting. See the section at right for details.
3. Set the receiving frequency. (p. 11)
4. Set the squelch level. (p. 14)
   - While pushing and holding [SQL] (ATT•SET), rotate [DIAL].
   - The first click of [DIAL] indicates the current squelch level.
   - “LEVEL 1” is loose squelch (for weak signals) and “LEVEL 9” is tight squelch (for strong signals).
   - “AUTO” indicates automatic level adjustment by a noise pulse counting system.
   - Push and hold [SQL] (ATT•SET) to open the squelch manually.
5. When a signal is received:
   - TX/RX indicator lights green.
   - Squelch opens and audio is emitted.
   - The S/RF meter shows the relative signal strength level.

### Setting audio volume

The audio level can be adjusted to one of 40 levels.

- Push [▲] or [▼] to adjust the audio level.
  - If squelch is closed, push and hold [SQL] (ATT•SET) to verify the audio level.
  - Pushing and holding either key changes the audio level continuously.
  - The display shows the volume level while setting.

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>AUDIO LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>00-00-00</td>
<td>Minimum setting (no audio)</td>
</tr>
<tr>
<td>00-00-01</td>
<td>0</td>
</tr>
<tr>
<td>00-00-08</td>
<td>8</td>
</tr>
<tr>
<td>00-00-16</td>
<td>16</td>
</tr>
<tr>
<td>00-00-19</td>
<td>19</td>
</tr>
<tr>
<td>00-00-24</td>
<td>24</td>
</tr>
<tr>
<td>00-00-32</td>
<td>32</td>
</tr>
<tr>
<td>00-00-39</td>
<td>39</td>
</tr>
</tbody>
</table>

Initial setting

Maximum setting
■ Squelch level setting

The squelch circuit mutes the received audio signal depending on the signal strength. The transceiver has 9 squelch levels, a continuously open setting and an automatic squelch setting.

While pushing and holding [SQL] (ATT•SET), rotate [DIAL] to select the squelch level.
- “LEVEL 1” is loose squelch (for weak signals) and “LEVEL 9” is tight squelch (for strong signals).
- “AUTO” indicates automatic level adjustment by a noise pulse counting system.
- “OPEN” indicates continuously open setting.

■ Operating mode selection

Operating modes are determined by the modulation of the radio signals. The transceiver has 3 operating modes: FM, AM and WFM modes. The mode selection is stored independently in each band and memory channels.

Typically, AM mode is used for the AM broadcast stations (0.495–1.620 MHz) and air band (118–135.995 MHz), and WFM is used for FM broadcast stations (76–107.9 MHz). WFM mode cannot be selected below 30 MHz bands for all versions (and above 850 MHz bands for USA version).

While pushing and holding [FUNC], push [CALL] (MODE•SCAN) several times to select the desired operating mode.
4 BASIC OPERATION

■ Monitor function
This function is used to listen to weak signals without disturbing the squelch setting or to open the squelch manually even when mute functions such as the tone squelch are in use.

Push and hold [SQL] (ATT•SET) to monitor the operating frequency.

- The [SQL] (ATT•SET) key can be set to ‘sticky’ operation in expanded set mode. See page 56 for details.

■ Attenuator function
The attenuator prevents distortion of a desired signal when very strong RF signals are near the desired frequency or when very strong electric fields, such as from a broadcasting station, are present at your location.

While pushing and holding [FUNC], push [SQL] (ATT•SET) momentarily to toggle the attenuator function ON and OFF.
- “ATT” appears when the attenuator functions is in use.
Transmitting

**CAUTION:** Transmitting without an antenna will damage the transceiver.

**NOTE:** To prevent interference, listen on the channel before transmitting by pushing and holding [SQL] (ATT•SET).

1. Set the operating frequency. (pgs. 9, 11)
   - Transmission is available on the 144 MHz/440 MHz (FM mode) amateur bands only.
   - Select output power if desired. See the section at right for details.
2. Push and hold [PTT] to transmit.
   - TX/RX indicator lights red.
   - S/RF meter shows the output power level.
3. Speak into the microphone using your normal voice level.
   - DO NOT hold the transceiver too close to your mouth or speak too loudly. This may distort the signal.
4. Release [PTT] to return to receive.

Transmit power selection

The transceiver has two output power levels to suit your operating requirements. Low output power during short-range communications may reduce the possibility of interference to other stations and will reduce current consumption.

While pushing and holding [FUNC], push [PTT] to toggle the transmit output power between High and Low.
- “LOW” appears when the low power is selected.
Dial select step

This transceiver has a 1 MHz tuning step for quick frequency setting. This dial select step can be set to 100 kHz, 1 MHz or 10 MHz steps, as desired.

Setting dial select step

1. Select VFO mode with [V/M] (SKIP•S.MW).
2. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
3. Rotate [DIAL] to select “D SEL.”
4. While pushing and holding [FUNC], rotate [DIAL] to select the desired dial select step.
5. Push [SQL] (ATT•SET) momentarily to exit set mode.
### Lock function

To prevent accidental frequency changes and unnecessary function activation, use the lock function.

- While pushing and holding [FUNC], push and hold [BAND] (TS•LOCK) for 1 sec. to turn the lock function ON and OFF.
  - “L” appears while the lock function is active.
  - [SQL] (ATT•SET) and [▲]/[▼] can be used while the lock function is in use in default setting. Either or both [SQL] (ATT•SET) and [▲]/[▼] keys may also be locked in set mode. (p. 56)

### [DIAL] function assignment

The [DIAL] control can be used as an audio volume control instead of [▲]/[▼] keys to suit your preference. However, while [DIAL] functions as an audio volume, [▲]/[▼] keys function as tuning controls.

- While pushing and holding [FUNC], push [▲]/[▼] to toggle the [DIAL] function between tuning dial and audio volume.
  - “VOL” appears when [DIAL] functions as an audio volume.

<table>
<thead>
<tr>
<th>[DIAL] and [▲]/[▼] functions</th>
<th>No “VOL” indication</th>
<th>“VOL” appears</th>
</tr>
</thead>
<tbody>
<tr>
<td>[DIAL]</td>
<td>Frequency, Memory channel, Squelch level, Scanning direction, Set mode item and condition set</td>
<td>Audio volume set Set mode condition set</td>
</tr>
<tr>
<td>[▲]/[▼]</td>
<td>Audio volume set</td>
<td>Frequency, Memory channel, Squelch level, Scanning direction, Set mode item</td>
</tr>
</tbody>
</table>
General

When using a repeater, the transmit frequency is shifted from the receive frequency by the amount of the offset frequency. It is convenient to program repeater information, such as offset and access tone, into memory channels.

1. Set the receive frequency (repeater output frequency).
2. Set the shift direction of the transmit offset frequency. (–DUP or +DUP; see the next section for details.)
   - “–DUP” or “+DUP” indicates a minus or plus offset of the transmit frequency, respectively.
   - When the auto repeater function is in use (USA/KOREA versions only), this selection and step 3 are not necessary. (p. 23)
3. Activate the subaudible tone encoder, according to repeater requirements.
   - Refer to page 21 for tone frequency settings.
   - The displayed frequency automatically changes to the transmit frequency (repeater input frequency).
   - If “OFF” appears, check the offset frequency (see next page for details) or shift direction (see section at right).
5. Release [PTT] to receive.
6. Push and hold [SQL] (ATT•SET) to check whether the other station’s transmit signal can be received directly on the repeater’s input frequency.

Setting duplex and duplex direction

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.

2. Rotate [DIAL] to select “DUP.”

3. While pushing and holding [FUNC], rotate [DIAL] to select “–DUP” or “+DUP.”
4. Push [SQL] (ATT•SET) to exit set mode.
5. Push and hold [SQL] (ATT•SET) to monitor the repeater input frequency.
Offset frequency

When communicating through a repeater, the transmit frequency is shifted from the receive frequency by the amount of the offset frequency.

① While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.

② Rotate [DIAL] to select “OFFSET.”

After 1 sec.

Offset frequency item

Setting indication

0.000

③ While pushing and holding [FUNC], rotate [DIAL] to set the desired offset frequency within 0.000–159.995 MHz range.

• The tuning step, selected in VFO mode, is used for setting.

④ Push [SQL] (ATT•SET) to exit set mode.
To be accessed, some repeaters require subaudible tones on the input signal. Subaudible tones are added to your normal signal and must be set in advance.

**Setting the subaudible tone frequency**

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.

2. Rotate [DIAL] to select “R TONE.”

3. While pushing and holding [FUNC], rotate [DIAL] to select the desired subaudible tone frequency.

4. Push [SQL] (ATT•SET) to exit set mode.

- **Available tone frequency list**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>67.0</th>
<th>69.3</th>
<th>71.9</th>
<th>74.4</th>
<th>77.0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>79.7</td>
<td>82.5</td>
<td>85.4</td>
<td>88.5</td>
<td>91.5</td>
</tr>
<tr>
<td></td>
<td>94.8</td>
<td>97.4</td>
<td>100.0</td>
<td>103.5</td>
<td>107.2</td>
</tr>
<tr>
<td></td>
<td>110.9</td>
<td>114.8</td>
<td>118.8</td>
<td>123.0</td>
<td>127.3</td>
</tr>
<tr>
<td></td>
<td>131.8</td>
<td>136.5</td>
<td>141.3</td>
<td>146.2</td>
<td>151.4</td>
</tr>
<tr>
<td></td>
<td>156.7</td>
<td>159.8</td>
<td>162.2</td>
<td>165.5</td>
<td>167.9</td>
</tr>
<tr>
<td></td>
<td>171.3</td>
<td>173.8</td>
<td>177.3</td>
<td>179.9</td>
<td>183.5</td>
</tr>
<tr>
<td></td>
<td>186.2</td>
<td>189.9</td>
<td>192.8</td>
<td>196.6</td>
<td>199.5</td>
</tr>
<tr>
<td></td>
<td>199.5</td>
<td>203.5</td>
<td>206.5</td>
<td>210.7</td>
<td>218.1</td>
</tr>
<tr>
<td></td>
<td>206.5</td>
<td>210.7</td>
<td>214.8</td>
<td>218.1</td>
<td>225.7</td>
</tr>
<tr>
<td></td>
<td>218.1</td>
<td>229.1</td>
<td>233.6</td>
<td>241.8</td>
<td>250.3</td>
</tr>
</tbody>
</table>

**NOTE:** The transceiver has 50 tone frequencies and consequently their spacing is narrow compared to units having 38 tones. Therefore, systems using some tone frequencies may receive interference from signals using adjacent tone frequencies.

**CONVENIENT!**

**Tone scan function:** When you don’t know the subaudible tone used for a repeater, the tone scan is convenient for detecting the tone frequency. (p. 48)

While pushing and holding [FUNC], pushing and holding [CALL] (MODE•SCAN) for 1 sec. to start the repeater tone scan.

- Push [CALL] (MODE•SCAN) to cancel the scan.
- When the required tone frequency is detected, the scan pauses.
Setting the subaudible tone encoder ON/OFF

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
2. Rotate [DIAL] to select “T/TSQL.”

\[ T/T \text{ SQL} \] After 1 sec. \[ OFF \] to

3. While pushing and holding [FUNC], rotate [DIAL] to select the repeater tone from “TONE” or “OFF.”

\[ OFF \] to Subaudible tone OFF \[ TONE \] to Repeater tone selection

- TSQL to Tone squelch selection
- DTC\$ to DTCS selection
- P BEEP to Tone squelch with pocket beep function selection
- P DTC\$ to DTCS with pocket beep function selection

4. Push [SQL] (ATT•SET) to exit set mode.

1750 Hz tone

Some European repeaters require a 1750 Hz tone burst to be accessed. For such European repeaters, perform the following.

1. Set the receive frequency (repeater output frequency).
2. Set the shift direction of the transmit frequency. (–DUP or +DUP; see p. 19 for details.)
   - “–DUP” or “+DUP” indicates a minus or plus offset of the transmit frequency, respectively.
3. While pushing and holding [PTT], push and hold [SQL] (ATT•SET) for 1 to 2 sec. to transmit a 1750 Hz tone burst signal.
   - The displayed frequency automatically changes to the transmit frequency (repeater input frequency).
   - If “OFF” appears, check the offset frequency (see p. 20 for details) or shift direction (p. 19).
5. Release [PTT] to receive.
6. Push and hold [SQL] (ATT•SET) to monitor the repeater input frequency.
Auto repeater function

The USA/KOREA versions automatically activate the repeater settings when the operating frequency falls within or outside of the general repeater output frequency range. The offset and repeater tone frequencies are not changed by the auto repeater function. Reset these frequencies, if necessary.

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.

2. Rotate [DIAL] to select “AUTORP.”

3. While pushing and holding [FUNC], rotate [DIAL] to select the desired condition.

   **U.S.A. version:**
   - OFF : The auto repeater function is turned OFF.
   - DUP ONLY : Activates duplex offset only. (default)
   - DUP TONE : Activates duplex and tone.

   **Korea version:**
   - OFF : Deactivates the function.
   - ON : Activates duplex and tone. (default)

4. Push [SQL] (ATT•SET) to exit set mode.

**Frequency range and offset direction**

**U.S.A. version:**

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>Duplex direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>145.200–145.495 MHz</td>
<td>“–” appears</td>
</tr>
<tr>
<td>146.610–146.995 MHz</td>
<td></td>
</tr>
<tr>
<td>147.000–147.395 MHz</td>
<td>“+” appears</td>
</tr>
<tr>
<td>442.000–444.995 MHz</td>
<td>“+” appears</td>
</tr>
<tr>
<td>447.000–449.995 MHz</td>
<td>“–” appears</td>
</tr>
</tbody>
</table>

**Korea version:**

<table>
<thead>
<tr>
<th>Frequency range</th>
<th>Duplex direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>439.000–440.000 MHz</td>
<td>“–” appears</td>
</tr>
</tbody>
</table>
Memory/CALL Channels

General description

The IC-P7A has 1050 memory channels including 50 scan edge memory channels (25 pairs) for storage of often-used frequencies. And a total of 18 memory banks, A to H, J, L, N, O to R, T, U and Y are available for storing groups of frequencies, etc. Up to 100 channels can be assigned into a bank.

Memory channel contents

The following information can be programmed into memory channels:

- Operating frequency (p. 11)
- Operating mode (p. 14)
- Duplex direction (DUP or –DUP) with an offset frequency (pgs. 19, 20)
- Subaudible tone encoder (p. 22), tone squelch or DTCS squelch ON/OFF (p. 45)
- Subaudible tone frequency (p. 21), tone squelch frequency or DTCS code with polarity (pgs. 46, 47)
- Scan skip information (p. 39).

Memory channel programming

1. Push [V/M] (skip•S.MW) to select VFO mode.
2. Set the desired frequency:
   - Select the desired band with [BAND] (TS•LOCK).
   - Set the desired frequency with [DIAL].
   - Set other data (e.g. offset frequency, duplex direction, subaudible tone frequency, etc.), if desired.
3. Push and hold [V/M] (skip•S.MW) for 1 sec. to enter select memory write mode.
   - 1 short and 1 long beep sound.
   - “MR” indicator and memory channel number blink.
4. Rotate [DIAL] to select the desired channel.
   - Call channels (C0, C1), VFO (VF) and scan edge channels (00A/00b to 24A/24b), as well as regular memory channels, can be programmed in this way.
   - While pushing and holding [FUNC], rotate [DIAL] to select memory channel in 10 channel steps.
5. Push and hold [V/M] (skip•S.MW) for 1 sec.
   - 3 beeps sound
   - Memory channel number automatically increases when continuing to push [V/M] (skip•S.MW) after programming.

[EXAMPLE]: Programming 145.870 MHz into memory channel 20 (blank channel).

```
Push [V/M] (skip•S.MW) for 1 sec. Rotate [DIAL] Push [V/M] (skip•S.MW) for 1 sec.
```

```
145.870 FM-DUP TSQL
146.000 FM
145.870 FM-DUP TSQL
145.870 FM-DUP TSQL
```
6 MEMORY/CALL CHANNELS

Memory bank setting

The IC-P7A has a total of 18 banks (A to H, J, L, N, O to R, T, U and Y). Regular memory channels, 000 to 999, may assigned into a desired bank for easy memory management.

1. Push and hold \([V/M] (\text{Skip\text{-}S.MW})\) for 1 sec. to enter select memory write mode.
   - 1 short and 1 long beep sound.
   - “MR” indicator and memory channel number blink.

2. Rotate \([DIAL]\) to select the desired memory channel.

3. While pushing and holding \([CALL] (\text{Mode\text{-}Scan})\), rotate \([DIAL]\) to select “BANK.”
   - After releasing \([CALL] (\text{Mode\text{-}Scan})\), “-- -- -- --” is displayed instead of the frequency indication, and only “MR” indicator blinks.
   - Bank group and channel number is displayed if the selected memory channel has already been assigned to a bank.
   - “BANK” can can also be selected by pushing \([CALL] (\text{Mode\text{-}Scan})\) several times.

4. While pushing and holding \([BAND] (\text{TS\text{-}Lock})\), rotate \([DIAL]\) to select the desired bank.
   - Banks A to H, J, L, N, O to R, T, U and Y are available.
   - The bank can also be selected by pushing \([BAND] (\text{TS\text{-}Lock})\) several times.

5. Rotate \([DIAL]\) to select the desired bank channel number.
   - Vacant bank channel numbers are only be displayed.

6. Push and hold \([V/M] (\text{Skip\text{-}S.MW})\) for 1 sec. to set the channel into the bank.
   - Return to the previous indication.
Memory bank selection

1. Push [V/M] (SKIP•S.MW) to select memory mode, if desired.
2. While pushing and holding [BAND] (ts•Lock), rotate [DIAL] to select the desired bank (A to H, J, L, N, O to R, T, U and Y).
   - The bank can also be selected by pushing [BAND] (ts•Lock) several times.
   - The only programmed banks are displayed.

   ![Memory bank selection](image)

3. Rotate [DIAL] to select the bank channel.
   - Only programmed channels are displayed.

   ![Bank channel selection](image)

4. To return to regular memory operation, rotate [DIAL] while pushing and holding [BAND] (ts•Lock), or push [BAND] (ts•Lock) several times.
Programming memory/bank name

Each memory channel can be programmed with an alphanumerical channel name for easy recognition and that can be indicated independently by channel. Names can be a maximum of 6 characters.

1. Push [V/M] (skip•S.MW) to select memory mode.
2. Rotate [DIAL] to select the desired memory channel.
3. Push and hold [V/M] (skip•S.MW) for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beep sound.
   • “MR” indicator and memory channel number blink.

4. While pushing and holding [CALL] (mode•scan), rotate [DIAL] to select “M NAME” or “B NAME” when programming the memory name or the bank name, respectively.
   • Name type can also be selected by pushing [CALL] (mode•scan) several times.
   • After releasing [CALL] (mode•scan), an under bar blinks for the first digit instead of the frequency indication, and only “MR” indicator blinks.

5. While pushing and holding [FUNC], rotate [DIAL] to select the desired character.
   • The selected character blinks.

6. Rotate [DIAL] to move the cursor to left or right.

Memory name
- Available characters
  A to Z, 0 to 9, ( ), *, +, –, :, = and space.

Bank name
Selecting display type

During memory mode operation, the programmed memory name, bank name or the channel number can be displayed instead of the frequency at your preference.

![Image of a radio receiver]

When no memory or bank name is programmed with the selected memory channel, frequency is displayed on the function display.

1. Push [V/M] (skip·S.MW) to select memory mode.
2. [BAND] (ts·Lock) to select the desired bank.
3. While pushing and holding [FUNC], push [BAND] (ts·Lock) momentarily to select display type from frequency, bank name, memory name and channel number display.

Selecting bank channel indication

During bank channel operation, the bank channel number can also be displayed instead of the memory channel number indication.

- After selecting channel number indication as described at left, push [BAND] (ts·Lock) to select the desired bank.
- Or while pushing and holding [BAND] (ts·Lock), rotate [DIAL] to select the desired bank.
6 MEMORY/CALL CHANNELS

■ Copying memory contents
This function transfers a memory channel's contents to a VFO (or another memory channel). This is useful when searching for signals around a memory channel frequency and for recalling the offset frequency, subaudible tone frequency etc.

◇ Memory→VFO
1 Select the memory channel to be copied.
   ➤ Push [V/M] (S.MW) momentarily to select memory mode, then rotate [DIAL] to select the desired memory channel.
   • Select the bank channel with [BAND] (TS•LOCK) and [DIAL], if desired.
2 Push and hold [V/M] (S.MW) for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beep sound.
   • “M” indicator and memory channel number blink.
3 Rotate [DIAL] to select “VF.”
4 Push and hold [V/M] (S.MW) for 1 sec. again.
   • VFO mode is selected automatically.

Pushing and holding [V/M] (S.MW) for 2 sec. at the step ②, can also copies the memory contents to VFO. In this case, steps ③ and ④ are not necessary.

◇ Memory→memory
1 Select the memory channel to be transferred.
   ➤ Push [V/M] (S.MW) to select memory mode, then rotate [DIAL] to select the desired memory channel.
2 Push and hold [V/M] (S.MW) for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beep sound.
   • “M” indicator and memory channel number blink.
   • Do not hold [V/M] (S.MW) for more than 1 sec. otherwise the memory contents will be copied to VFO.
3 Rotate [DIAL] to select the target memory channel.
4 Push and hold [V/M] (S.MW) for 1 sec. again to transfer.

[EXAMPLE]: Copying channel 20 to 51.
Select memory channel

- Push and hold [V/M] (S.MW) for 1 sec.
- Rotate [DIAL]
- Push and hold [V/M] (S.MW) for 1 sec.
Memory clearing

Contents of programmed memories can be cleared (blanked), if desired.

1. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beeps sound.
   • “MR” indicator and memory channel number blink.
   • Do not hold [V/M] (SKIP•S.MW) for more than 2 sec. otherwise the memory contents will be copied to VFO.

2. Rotate [DIAL] to select the desired memory channel to be cleared.

3. While pushing and holding [CALL] (MODE•SCAN), rotate [DIAL] to select “CLEAR.”
   • “CLEAR” item can also be selected by pushing [CALL] (MODE•SCAN) several times.

4. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to clear the contents.
   • 3 beeps sound.
   • Return to VFO or memory mode, if VFO is selected before performing step 1.
   • Return to select memory write mode if memory mode is selected before performing step 1. — “MR” indicator and memory channel number blink. Push [V/M] (SKIP•S.MW) momentarily to return to memory mode.

NOTE: Be careful! — the contents of cleared memories CANNOT be re-called even in bank channel operation.
Transferring memory contents

Contents of programmed memory channels can be transferred to another memory channels.

1. Push and hold [V/M] (SKIP·S.MW) for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beeps sound.
   • “MR” indicator and memory channel number blink.
   • Do not hold [V/M] (SKIP·S.MW) for more than 2 sec. otherwise the memory contents will be copied to VFO.
2. Rotate [DIAL] to select the desired memory channel to be transferred.
3. While pushing and holding [CALL] (MODE·SCAN), rotate [DIAL] to select “CLEAR.”
   • Pushing [CALL] (MODE·SCAN) several times also “CLEAR” item is selectable.
4. Push and hold [V/M] (SKIP·S.MW) for 1 sec.
   • The displayed contents are cleared.

CONVENIENT!:
Instead of steps 3 and 4 operations, while pushing and holding [FUNC], push and hold [V/M] (SKIP·S.MW) for 1 sec. also clearing the contents.

5. Rotate [DIAL] to select the desired target memory channel.
6. Push and hold [V/M] (SKIP·S.MW) for 1 sec. to transfer the contents.

Example—Transferring the contents of memory channel 20 to channel 30.
Erasing/transferring bank contents
The bank contents of programmed memory channels can be cleared or reassigned to another memory bank.

INFORMATION: Even if the memory bank contents are cleared, the memory channel contents still remain programmed.

1. Select the desired bank contents to be transferred or erased from the bank.
   - Push [V/M] (SKIP•S.MW) to select memory mode.
   - While pushing and holding [BAND] (TS•LOCK), rotate [DIAL] to select the desired memory bank.
   - Rotate [DIAL] to select the bank channel.

2. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode.
   - 1 short and 1 long beeps sound.
   - Displays the original memory channel number automatically and "MR" indicator and memory channel number blink.
   - Do not hold [V/M] (SKIP•S.MW) for more than 2 sec. otherwise the bank contents will be copied to VFO.

3. While pushing and holding [CALL] (MODE•SCAN), rotate [DIAL] to select “BANK.”
   - Pushing [CALL] (MODE•SCAN) several times, “BANK” is also selectable.

4. While pushing and holding [BAND] (TS•LOCK), rotate [DIAL] to select the desired bank to receive the transferred information or erase the bank contents.
   - Select “-- -- -- --” indication when erasing the contents from the bank.

   When transferring
   ![Example of transferring]

   When erasing
   ![Example of erasing]

5. Rotate [DIAL] to select the desired bank channel.

6. While pushing and holding [CALL] (MODE•SCAN), rotate [DIAL] to select “S.MW.”
   - Pushing [CALL] (MODE•SCAN) several times, “S.MW” is also selectable.

7. Push and hold [V/M] (SKIP•S.MW) for 1 sec.
   - 3 beeps sound.

Push S.MW for 1 sec.

Push V/M for 1 sec.
6 MEMORY/CALL CHANNELS

■ Call channel programming

1. Push [V/M] (SKIP•S.MW) to select VFO mode, if necessary.
2. Set the desired frequency:
   - Select the desired band with [BAND] (TS•Lock).
   - Set the desired frequency with [DIAL].
   - Set other data (e.g. offset frequency, duplex direction, subaudible tone frequency, etc.), if desired.
3. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode.
   - 1 short and 1 long beep sound.
   - “MR” indicator and memory channel number blink.
4. Rotate [DIAL] to select the desired call channel.
   - “MR” indicator and call channel number “C0” or “C1” blink.
   - While pushing and holding [FUNC], rotate [DIAL] to select memory channel in 10 channel steps.
5. Push and hold [V/M] (SKIP•S.MW) for 1 sec.
   - 3 beeps sound

■ Copying call channel contents

1. Push [CALL] (MODE•SCAN) momentarily to select a call channel.
2. Rotate [DIAL] to select the desired call channel.
3. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode.
   - 1 short and 1 long beeps sound.
   - “MR” indicator and memory channel number blink.
   - Do not hold [V/M] (SKIP•S.MW) for more than 2 sec. otherwise the call channel contents will be copied to VFO.
4. Rotate [DIAL] to select the desired target memory channel.
5. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to transfer the contents.

CONVENIENT!:
When you want to copy the call channel contents to the VFO, push and hold [V/M] (SKIP•S.MW) for 2 sec. as in steps 3.
Scan types

Scanning searches for signals automatically and makes it easier to locate new stations for contact or listening purposes.

There are 7 scan types and 4 resume conditions to suit your operating needs.

**FULL SCAN** (p. 35)
Repeatedly scans all frequencies over all bands.
Some frequency ranges are not scanned according to the frequency coverage of the transceiver’s version.

**SELECTED BAND SCAN** (p. 35)
Repeatedly scans all frequencies over the entire selected band.

**PROGRAMMED SCAN** (p. 35)
Repeatedly scans between two user-programmed frequencies. Used for checking for frequencies within a specified range such as repeater output frequencies, etc.

**MEMORY (SKIP) SCAN** (p. 37)
Repeatedly scans memory channels except those set as skip channels. Skip channels can be turned ON and OFF by pushing [FUNC] + [V/M] (SKIP•S.MW) in memory mode.

**ALL/SELECTED BANK SCAN** (p. 37)
Repeatedly scans all bank channels or selected bank channels. Skip scan is also available.

**FREQUENCY/MEMORY SKIP FUNCTION** (p. 39)
Skips unwanted frequencies or channels that inconveniently stop scanning. This function can be turned ON and OFF by pushing [FUNC] + [V/M] (skip•s.mw) in either VFO or memory mode.
7 SCAN OPERATION

Full/band/programmed scan

1. Select VFO mode with [V/M (skip•S.MW)], if necessary.
   • Select the desired frequency band with [BAND (TS•LOCK)], if desired.
2. Set the squelch to the point where noise is just muted.
3. Push and hold [CALL (MODE•SCAN)] for 1 sec. to enter scan type selection condition.
4. Rotate [DIAL] to select the desired scanning type.
   • “ALL” for full scan; “BAND” for band scan, “PROGxx” for programmed scan (xx= 0 to 24; programmed scan edges numbers only displayed)
5. Push [CALL (MODE•SCAN)] again to start the scan
   • Scan pauses when a signal is received.
   • Rotate [DIAL] to change the scanning direction, or resumes manually.
   • To stop the scan, push [CALL (MODE•SCAN)].

- During full/band scan

About the scanning steps: The selected tuning step in each frequency band (in VFO mode) is used during scan.
Scan edges can be programmed in the same manner as memory channels. Scan edge frequencies are programmed into scan edges, 00A/00b to 24A/24b, in memory channels.

1. Push [V/M] (skip•s.mw) to select VFO mode, if necessary.
2. Set the desired frequency:
   ➔ Select the desired band with [BAND] (ts•lock).
   ➔ Set the desired frequency with [DIAL].
   ➔ Set other data (e.g. offset frequency, duplex direction, subaudible tone frequency, etc.), if desired.
3. Push and hold [V/M] (skip•s.mw) for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beeps sound.
   • “MR” indicator and memory channel number blink.
4. Rotate [DIAL] to select the desired programmed scan edge channel from 00A to 24A.
5. Push and hold [V/M] (skip•s.mw) for 1 sec.
   • 3 beeps sound
   • The other scan edge channel “b,” 00b to 24b, is automatically selected when continuing to push [V/M] (skip•s.mw) after programming.
6. To program a frequency for the other pair of scan edges, 00b or 24b, repeat steps 2 and 5.
   • If the same frequency is programmed into a pair of scan edges, programmed scan will not function.

**EXAMPLE**: Programming 145.300 MHz into scan edge 03A.

![Diagram of scan edge programming process]
Memory/bank scan

1. Select memory mode with [V/M] (SKIP•S.MW).
2. Set the squelch to the point where noise is just muted.
3. Push and hold [CALL] (MODE•SCAN) for 1 sec. to enter scan type selection mode.
4. Rotate [DIAL] to select the desired scanning type.
   - “M ALL” for all memory scan; “B ALL” for all bank scan; “B LINK” for bank link scan; “BANK” for bank scan.

5. Push [CALL] (MODE•SCAN) momentarily to start the selected scan.
   - Scan pauses when a signal is received.
   - Rotate [DIAL] to change the scanning direction, or resumes manually.
6. To stop the scan, push [CALL] (MODE•SCAN).

   • All memory scan selection
     ![M ALL]
   • Bank link scan selection
     ![B LINK]
   • All bank scan selection
     ![B ALL]
   • Bank scan selection
     ![BANK]

Programmed bank

- All memory scan selection
- Bank link scan selection
- All bank scan selection
- Bank scan selection

**IMPORTANT!:** To perform memory or bank scan, 2 or more memory/bank channels MUST be programmed, otherwise the scan never starts.
Auto memory write scan

This scan is useful for searching a specified frequency range and automatically storing busy frequencies into memory channels. The same frequency ranges used for program scan are used for auto memory write scan.

1. Select VFO mode with [V/M] (SKIP•S.MW), if necessary.
2. Push and hold [CALL] (MODE•SCAN) for 1 sec. to enter scan type selection condition.
3. Rotate [DIAL] to select the desired scanning type.
   • “ALL” for full scan; “BAND” for band scan, “PROGxx” for programmed scan (xx= 0 to 24; programmed scan edges numbers only displayed)
4. Push [CALL] (MODE•SCAN) to start the scan.
5. Push [V/M] (SKIP•S.MW) to toggle the automatic memory write function ON and OFF.
   • “MR” indicator blinks during auto memory write.

During auto-memory write scanning:
- When a signal is received, scan pauses and the frequency is stored into auto memory write channel group (000*–199*).
- 2 short beeps sound when stored.
- Scan resumes after frequency storing.
- When all channels are stored, the scan cancels automatically and 1 long beep sounds.

Re-calling the stored frequencies:
1. Push [V/M] (SKIP•S.MW) to select memory mode.
2. Push [BAND] (TS•LOCK) several times, or while pushing and holding [BAND] (TS•LOCK), rotate [DIAL] to select the auto memory write channel group.
   • “♦” appears.
3. Rotate [DIAL] to select the desired channel.

Clearing the stored frequencies:
1. Select the auto memory write channel group.
2. While pushing and holding [FUNC], push and hold [V/M] (SKIP•S.MW) for 1 sec. to clear the all channels contents.
   • 1 short and 1 long beeps sound.

NOTE: The auto memory write channel contents CANNOT be cleared as an independent channel. Thus it is a good idea to copy the contents into a memory channel.
Skip channel/frequency setting

You can set the selected memory channel as a skip channel which is skipped during memory skip scan. In addition, it can be set as a skip channel for both memory skip scan and frequency skip scan. These are useful to speed up the scan interval.

1. Select a memory channel:
   - Push [V/M] (SKIP•S.MW) to select memory mode.
   - Rotate [DIAL] to select the desired channel to be a skip channel/frequency.

2. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode.

3. Push [CALL] (MODE•SCAN) several times to select “SKIP.”
   - While pushing and holding [CALL] (MODE•SCAN), rotating [DIAL] can also select “SKIP.”

4. Rotate [DIAL] to select the skip condition from “SKIP,” “PSKIP” or “OFF” for the selected channel.
   - OFF : The channel or programmed frequency is scanned during any scan.
   - SKIP : The channel is skipped during memory or bank scan.
   - PSKIP : The channel is skipped during memory/bank scan and the programmed frequency is skipped during VFO scan, such as programmed scan.

[Diagram of scanner with skip setting options]

- Skip setting

Push [CALL] (MODE•SCAN) several times to select “SKIP.”
- While pushing and holding [CALL] (MODE•SCAN), rotating [DIAL] can also select “SKIP.”

- Skip setting

Push and hold [DIAL] for 1 sec.

Setting indication

Push [V/M] (SKIP•S.MW) for 1 sec. to enter select memory write mode.

Push [DIAL] to select the skip condition from “SKIP,” “PSKIP” or “OFF” for the selected channel.
- OFF : The channel or programmed frequency is scanned during any scan.
- SKIP : The channel is skipped during memory or bank scan.
- PSKIP : The channel is skipped during memory/bank scan and the programmed frequency is skipped during VFO scan, such as programmed scan.

Push | Push and hold | Dual operation
5. Push [CALL] (MODE•SCAN) several times; or while pushing and holding [CALL] (MODE•SCAN), rotate [DIAL] to select “S.MW.”

6. Push and hold [V/M] (SKIP•S.MW) for 1 sec. to set the skip condition.
   • “SKIP” or “PSKIP” indicator appears, according to the skip selection in step 4.

**Convenient!**
The skip setting can also be easily set with the following operation.

1. Select the desired memory channel to be set as a skip channel/frequency.
2. While pushing and holding [FUNC], push [V/M] (SKIP•S.MW) momentarily to select the skip condition from “SKIP,” “PSKIP” and “OFF (no indication).”

**Convenient!**
During VFO scanning, such as programmed scan, the skip setting can be programmed into the highest blank memory channel which is automatically selected with the following operation.

1. Start the VFO scan.
   - Select VFO mode with [V/M] (SKIP•S.MW).
   - Select the desired frequency band with [BAND] (TS•LOCK), if desired.
   - Push and hold [CALL] (MODE•SCAN) for 1 sec. to enter scan type selection condition.
   - Rotate [DIAL] to select the desired scanning type.
     • “ALL” for full scan; “BAND” for band scan; “PROGxx” for programmed scan (xx= 0 to 24; programmed scan edges numbers only displayed)
   - Push [CALL] (MODE•SCAN) again to start the scan.
     • Scan pauses when a signal is received.
     • Rotate [DIAL] to change the scanning direction, or resumes manually.
2. When scan pauses and you want to set the paused frequency as a skip frequency.
   - Push and hold [FUNC] then push [V/M] (SKIP•S.MW) for 1 sec. to store the paused frequency into the highest blank memory channel.
     • While pushing and holding [FUNC], scan pauses; and after writing the frequency, scan resumes.
Scan resume condition

◊ Scan pause timer
The scan pauses when receiving signals according to the scan pause time. It can be set from 2–20 sec. or unlimited.

① While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
② Rotate [DIAL] to select “EXPAND.”
③ While pushing and holding [FUNC], rotate [DIAL] to turn the expanded set mode ON.
④ Rotate [DIAL] to select “PAUSE.”
⑤ While pushing and holding [FUNC], rotate [DIAL] to set the desired scan pausing time from 2–20 sec. (2 sec. steps) or “HOLD.”
   • “2SEC”–“20SEC”; scan pauses 2–20 sec. while receiving a signal.
   • “HOLD”; scan pauses on a received a signal until it disappears.
⑥ Push [SQL] (ATT•SET) to exit set mode.

◊ Scan resume timer
The scan re-starts after a signal disappears according to the resume time. It can be set from 0–5 sec. or unlimited.

① While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
② Rotate [DIAL] to select “EXPAND.”
③ While pushing and holding [FUNC], rotate [DIAL] to turn the expanded set mode ON.
④ Rotate [DIAL] to select “RESUME.”
⑤ While pushing and holding [FUNC], rotate [DIAL] to set the desired scan pause time from 0–5 sec. (1 sec. steps) or “HOLD.”
   • “0SEC”; scan restarts immediately after the signal disappears.
   • “1SEC”–“5SEC”; scan restarts 1–5 sec. after the signal disappears.
   • “HOLD”; scan restarts by rotating [DIAL] only.
⑥ Push [SQL] (ATT•SET) to exit set mode.
Priority watch types

Priority watch checks for signals on a frequency every 5 sec. while operating on a VFO frequency or scanning. The transceiver has 3 priority watch types to suit your needs.

The watch resumes according to the selected scan resume condition. See the page at left for details.

NOTES:
- If the pocket beep function is activated, the transceiver automatically selects the tone squelch function when priority watch starts.

About priority beep function

When receiving a signal on the priority frequency, you can be alerted with beeps and a blinking “(••) .” This function can be activated when setting the priority watch function ON.

MEMORY CHANNEL WATCH
While operating on a VFO frequency, priority watch checks for a signal on the selected memory channel every 5 sec.
- A memory channel with skip information can be watched.

MEMORY SCAN WATCH
While operating on a VFO frequency, priority watch checks for signals on each memory channel in sequence.
- The memory skip function and/or memory bank scan is useful to speed up the scan.

VFO SCAN WATCH
While scanning in VFO mode, priority watch checks for signals on the selected memory channel every 5 sec.

Push  Push and hold  Dual operation
### Priority watch operation

Memory channel watch and memory scan watch

1. Select VFO mode, then set an operating frequency.
   - TX channel can also be selected.
2. Push [V/M] (skip•S.MW) to enter memory mode, then select the channel(s) to be watched.
   - For memory channel watch:
     Rotate [DIAL] to select the desired memory channel.
   - For memory scan watch:
     Push and hold [CALL] (MODE•SCAN) for 1 sec. to enter scan type selection condition to select the scan type, then push [CALL] (MODE•SCAN) again to start memory/bank scan.
3. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
4. Rotate [DIAL] to select “PRIO.”
5. While pushing and holding [FUNC], rotate [DIAL] to turn the priority watch ON.

- Select “BELL” if the priority beep function is necessary.

6. Push [SQL] (ATT•SET) to exit set mode and start the watch.
   - “PRIO” indicator appears.
   - The transceiver checks the memory/bank channel(s) every 5 sec.
   - The watch resumes according to the selected scan resume condition. (p. 41)

- During priority watch

    - Monitors VFO frequency for 5 sec.
    - Pauses on a memory (bank) channel when a signal is received.

- During priority watch with priority beep

    - Emits beep and blinks “(*)” indicator when a signal is received on a memory (bank) channel.

7. While pushing and holding [FUNC], push [SQL] (ATT•SET) to cancel the watch.
VFO scan watch

1. Push [V/M] (SKIP•S.MW) to enter memory mode, then rotate [DIAL] to select the memory channel.
2. Push and hold [CALL] (MODE•SCAN) for 1 sec. to enter scan type selection condition to select the scan type, then push [CALL] (MODE•SCAN) again to start memory/bank scan, if desired.

When scanning memory/bank channels:
- Starts memory/bank scan first. Memory/bank scan cannot be started after VFO scan is started.

3. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
4. Rotate [DIAL] to select “PRIO.”
5. While pushing and holding [FUNC], rotate [DIAL] to turn the priority watch ON.
   - Select “BELL” if the priority beep function is necessary.

<table>
<thead>
<tr>
<th>ON</th>
<th>BELL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority ON</td>
<td>Priority beep ON</td>
</tr>
</tbody>
</table>

6. Push [SQL] (ATT•SET) to exit set mode and start the watch.
   - “PRIO” indicator appears.
7. Push [CALL] (MODE•SCAN) for 1 sec. to enter scan type selection condition.
8. Rotate [DIAL] to select the desired scan type from “ALL,” “BAND” and “PROGxx (xx= 0–24).”

9. Push [CALL] (MODE•SCAN) to start the VFO scan watch.
   - The transceiver checks the memory channel(s) every 5 sec.
   - The watch resumes according to the selected scan resume condition. (p. 41)

• During VFO scan watch

![Diagram](image1)

Searches VFO frequencies for 5 sec.
Pauses on a memory (bank) channel when a signal is received.

• During VFO scan watch with priority beep

![Diagram](image2)

Emits beep and blinks “(*)” indicator when a signal is received on a memory (bank) channel.

10. While pushing and holding [FUNC], push [SQL] (ATT•SET) to cancel the watch and scan.

- Push  
- Push and hold  
- Dual operation
**9 TONE SQUELCH AND POCKET BEEP**

**Tone/DTCS squelch operation**

The tone or DTCS squelch opens only when receiving a signal with the same pre-programmed subaudible tone or DTCS code, respectively. You can silently wait for a signal using the same specified tone.

1. Set the desired frequency in FM mode.
2. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
3. Rotate [DIAL] to select “T/TSQL.”
4. While pushing and holding [FUNC], rotate [DIAL] to select the desired tone squelch condition from “TSQL,” “P BEEP,” “DTCS” and “P DTCS.”
5. Push [SQL] (ATT•SET) to exit set mode.
   • One of “TSQL,” “TSQL (●●),” “DTCS” or “DTCS (●●)” appears according to the tone selection in the step 4.

- **Subaudible tone OFF**
- **Tone squelch selection**
- **Repeater tone selection**
- **DTCS selection**
- **DTCS with pocket beep function selection**
- **Tone squelch with pocket beep function selection**
- **DTCS with pocket beep function selection**

6. When a signal with a matching tone is received, the squelch opens and the transceiver emits audio. When pocket beep function is activated, the transceiver also emits beep tones and blinks “(●●).”
   • Beep tones sound and “(●●)” blinks for 30 sec.
7. Push [FUNC] to manually stop the beeps and blinking.
   • “(●●)” disappears and the pocket beep function is deactivated.
8. To cancel the tone squelch or DTCS, select “OFF” with the “T/TSQL” in the set mode, as described in step 4.
Tone squelch frequency/DTCS code setting

88.5 Hz and 023 is set as the default for the tone squelch frequency and the DTCS code, respectively. The frequency and code can be selected as desired.

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
2. Rotate [DIAL] to select “C TONE” when selecting the tone squelch frequency; select “CODE” when selecting the DTCS code.

Tone squelch frequency selection

Press [SQL] (ATT•SET) after 1 sec. to switch to the desired tone frequency.

DTCS code selection

Press [SQL] (ATT•SET) after 1 sec. to switch to the desired DTCS code.

3. While pushing and holding [FUNC], rotate [DIAL] to select the desired subaudible tone frequency or DTCS code.
   - See the tables at right.
4. Push [SQL] (ATT•SET) to exit set mode.

Available tone frequency

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

NOTE: The transceiver has 50 tone frequencies and consequently their spacing are narrow compared to units having 38 tones. Therefore, some tone frequencies may receive interference from adjacent tone frequencies.

Available DTCS code

| 023 | 054 | 125 | 165 | 245 | 274 | 356 | 445 | 506 | 627 | 732 |
| 025 | 065 | 131 | 172 | 246 | 306 | 364 | 446 | 516 | 631 | 734 |
| 026 | 071 | 132 | 174 | 251 | 311 | 365 | 452 | 523 | 632 | 734 |
| 031 | 072 | 134 | 205 | 252 | 315 | 371 | 454 | 526 | 654 | 734 |
| 032 | 073 | 143 | 212 | 255 | 325 | 411 | 455 | 532 | 662 | 734 |
| 036 | 074 | 145 | 223 | 261 | 331 | 412 | 462 | 546 | 664 | 734 |
| 043 | 114 | 152 | 225 | 263 | 332 | 413 | 464 | 565 | 703 | 734 |
| 047 | 115 | 155 | 226 | 265 | 343 | 423 | 465 | 606 | 712 | 734 |
| 051 | 116 | 156 | 243 | 266 | 346 | 431 | 466 | 612 | 723 | 734 |
| 053 | 122 | 162 | 244 | 271 | 351 | 432 | 503 | 624 | 731 | 734 |
9 TONE SQUELCH AND POCKET BEEP

■ DTCS polarity setting

As well as a code setting, the polarity setting is also available for the DTCS operation. When a different polarity is set, the DTCS never releases audio mute even when a signal with a matching code number is received.

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
2. Rotate [DIAL] to select “EXPAND.”
3. While pushing and holding [FUNC], rotate [DIAL] to turn the expanded set mode ON.
4. Rotate [DIAL] to select “DTCS P.”

5. While pushing and holding [FUNC], rotate [DIAL] to select the polarity from “BOTH N” (normal), “TN-RR” (TX: normal, RX: reverse), “TR-RN” (TX: reverse, RX: normal) and “BOTH R” (reverse).

6. Push [SQL] (ATT•SET) to exit set mode.
Tone scan
By monitoring a signal that is being operated with pocket beep, tone or DTCS squelch function, you can determine the tone frequency or DTCS code necessary to open a squelch.

1. Set the frequency to be checked for a tone frequency or code.
2. Turn the desired tone type ON in set mode; “TONE” (repeater tone), “TSQL” (tone squelch) or “DTCS” (DTCS squelch).
   - One of “T,” “TSQL” or “DTCS” appears.
   - Even if the pocket beep function is activated, it is cancelled when the tone scan is started.
3. While pushing and holding [FUNC], push [CALL] (MODE•SCAN) for 1 sec. to start the tone scan.
   - To change the scanning direction, rotate [DIAL].
4. When the CTCSS tone frequency or 3-digit DTCS code is matched, the squelch opens and the tone frequency or code is temporarily programmed into the selected condition, such as a memory channel.
   - The tone scan pauses when a CTCSS tone frequency or 3-digit DTCS code is detected.

**NOTE:** The decoded tone frequency or code is programmed temporarily when a memory channel is selected. However, this will be cleared when the memory channel is re-selected.

**CONVENIENT!**
Even if no tone type is selected, pushing and holding [CALL] (MODE•SCAN) for 1 sec. while pushing and holding [FUNC] also starts tone scan. In this case, the tone scan searches for repeater tone frequency only.
## General

*Set mode* is used for programming infrequently changed values or conditions of functions.

In addition, the IC-P7A has an *expanded set mode* which is used for programming even more infrequently changed values or conditions of functions. When turning the expanded *set mode* OFF, only half of the set mode items are displayed for simple operation.

**Set mode entering and operation**

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter *set mode*.
2. Rotate [DIAL] to select the desired item.
3. While pushing and holding [FUNC], rotate [DIAL] to select the desired value or condition.
4. Push [SQL] (ATT•SET) to exit *set mode*, or rotate [DIAL] to select another set mode item.

### Expanded set mode ON/OFF

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter *set mode*.
2. Rotate [DIAL] to select “EXPAND.”
3. While pushing and holding [FUNC], rotate [DIAL] to turn the expanded *set mode* ON and OFF.
4. Rotate [DIAL] to select the desired item.
5. While pushing and holding [FUNC], rotate [DIAL] to select the desired value or condition.
6. Push [SQL] (ATT•SET) to exit *set mode*, or rotate [DIAL] to select another item.

 ![Dual operation](image-url)
### Set mode items

The following items are available in the *set mode* and *expanded set mode*.

#### General set mode items

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## 10 SET MODE

### Expanded set mode items

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<td>Scan pause timer</td>
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</table>

*Available for the USA and Korea versions only.
†Available for the USA version only.
Diamond Repeater tone frequency
Selects subaudible tone frequency for accessing a repeater, etc. Total of 50 tone frequencies (67.0–254.1 Hz) are available.

(default: 88.5 Hz)

- 88.5 Hz setting
- 254.1 Hz setting

Diamond Tone squelch frequency
Selects tone frequency for tone squelch or pocket beep operation from one of 50 available frequencies (67.0–254.1 Hz).

(default: 88.5 Hz)

- 88.5 Hz setting
- 254.1 Hz setting

Available subaudible tone frequencies

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Frequency</th>
<th>Frequency</th>
<th>Frequency</th>
<th>Frequency</th>
<th>Frequency</th>
<th>Frequency</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>67.0</td>
<td>79.7</td>
<td>94.8</td>
<td>110.9</td>
<td>131.8</td>
<td>156.7</td>
<td>171.3</td>
<td>186.2</td>
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<td>69.3</td>
<td>82.5</td>
<td>97.4</td>
<td>114.8</td>
<td>136.5</td>
<td>159.8</td>
<td>173.8</td>
<td>189.9</td>
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<td>71.9</td>
<td>85.4</td>
<td>100.0</td>
<td>118.8</td>
<td>141.3</td>
<td>162.2</td>
<td>177.3</td>
<td>192.8</td>
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<td>74.4</td>
<td>88.5</td>
<td>103.5</td>
<td>123.0</td>
<td>146.2</td>
<td>165.5</td>
<td>179.9</td>
<td>199.6</td>
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<tr>
<td>77.0</td>
<td>91.5</td>
<td>107.2</td>
<td>127.3</td>
<td>151.4</td>
<td>167.9</td>
<td>183.5</td>
<td>205.9</td>
</tr>
</tbody>
</table>

Diamond DTCS code
Selects DTCS (both encoder/decoder) code for DTCS squelch operation. Total of 104 codes (023–754) are available.

Code 023 setting

- Code 754 setting

Available DTCS code

<table>
<thead>
<tr>
<th></th>
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</tr>
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<tbody>
<tr>
<td>023</td>
<td>054</td>
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<tr>
<td>025</td>
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<tr>
<td>026</td>
<td>071</td>
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<tr>
<td>031</td>
<td>072</td>
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<td>143</td>
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<td>255</td>
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<tr>
<td>036</td>
<td>074</td>
<td>145</td>
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<tr>
<td>051</td>
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<td>156</td>
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<td>431</td>
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<tr>
<td>053</td>
<td>122</td>
<td>162</td>
<td>244</td>
<td>271</td>
<td>351</td>
<td>432</td>
<td>503</td>
</tr>
</tbody>
</table>

ATT DTCS TSQL WFMAM -DUP LOW VOL PRIO P SK I P MR 5 1 9

The polarity can also be set in “DTCS P” as described on page 58.
10 SET MODE

◇ Dial select step
Select the tuning step while pushing and holding [FUNC] from 100 kHz, 1 MHz (default) and 10 MHz.

1 MHz step
100 kHz step

◇ Offset frequency
Sets the offset frequency for duplex (repeater) operation for each frequency band independently within 0 to 159.995 MHz range. During duplex operation (−DUP or +DUP), the offset frequency shifts the transmit frequency (or while [SQL] (ATT•SET) is pushed).

The default value may differ according to the selected frequency band (before accessing set mode) and transceiver version.

The selected tuning step in VFO mode is used for setting the offset frequency.

◇ Tone selection
Sets the tone encoder, tone squelch or DTCS squelch operation and pocket beep capability, when waiting for the desired signal.

- OFF : Regular noise squelch operation. (default)
- TONE : Using tone encoder. Some repeaters require subaudible tones to be accessed.
- TSQ : Using tone squelch. The squelch opens only when a signal with matched subaudible tone is received.
- P BEEP : In addition to the “TSQ” setting, alert beeps will sound when a signal with matched tone is received.
- DTCS : Using DTCS squelch. The squelch opens only when a signal with matched DTCS code is received.
- P DTCS : In addition to the “DTCS” setting, alert beeps will sound when a signal with matched DTCS code is received.

The subaudible tone frequency and DTCS code are programmed as the tone frequency and DTCS code items, respectively.
**Duplex direction**
Sets the duplex direction. The transmit frequency is shifted from the receive frequency by the offset frequency when transmitting or when the monitor function is in use.
- OFF : Simplex operation. (default)
- –DUP : The transmit frequency shifts down while transmitting.
- +DUP : The transmit frequency shifts up while transmitting.

**Key-touch beep**
The key-touch beep can be turned OFF for silent operation.
(default: ON)

**Beep output level**
Adjust the key-touch beep tone level to the desired level within 8 levels. Beep tone sounds while setting. The tone sound let you know the approximate sound level.
(default: 2)

The key-touch beep (previous item) must be set to ON to have a beep tone.
10 SET MODE

◊ Display backlighting

The transceiver has display backlighting with a 5 sec. timer for night time operation. The backlighting can be turned ON continuously or turned OFF, if desired.

- **AUTO**: Lights when an operation is performed, goes out after 5 sec. (default)
- **ON**: Lights continuously during transceiver power is ON.
- **OFF**: Never lights.

◊ Power save

The power save function reduces the current drain to conserve battery power. This power save function can be turned OFF, if desired.

In the default setting (“ON” selection), the power save function is activated in 1:4 (125 msec.: 500 msec.) ratio when no signal is received for 5 sec. The ratio becomes 1:8 (125 msec.: 1 sec.) when no signal is received for another 60 sec.
Key lock effect
While the key lock function is ON, [▲]/[▼] and [SQL] (ATT•SET) can still be accessed. Accessible keys can be set to one of 4 groups. [PWR] and [FUNC]+[BAND] (TS•LOCK) are also accessible during the lock, however, these keys are not effected by this setting.

- **NORMAL**: [▲]/[▼] and [SQL] (ATT•SET) are accessible. (default)
- **NO SQL**: [SQL] (ATT•SET) is accessible.
- **NO VOL**: [▲]/[▼] are accessible.
- **ALL**: No accessible key is available, except [PWR] and [FUNC]+[BAND] (TS•LOCK).

Dial speed acceleration
The dial speed acceleration automatically speeds up the tuning dial speed when rotating [DIAL] rapidly.

- **ON**: The dial speed acceleration is tuned ON. (default)
- **OFF**: The dial speed acceleration is turned OFF.

Monitor key action
The monitor key, [SQL] (ATT•SET), can be set as a ‘sticky’ key. When set to the sticky condition, each push of [SQL] (ATT•SET) toggles the monitor function ON and OFF.

- **PUSH**: Pushing and holding [SQL] (ATT•SET) to monitor the frequency. (default)
- **HOLD**: Push [SQL] (ATT•SET) momentarily to monitor the frequency and push momentarily again to cancel it.
10 SET MODE

◊ Auto power OFF

The transceiver can be set to automatically turn OFF after a specified period with a beep when no key operations are performed.

30 min., 1 hour, 1.5 hours, 2 hours and OFF (default) can be specified. The specified period is retained even when the transceiver is turned OFF by the auto power OFF function. To cancel the function, select “OFF” in this set mode.

◊ Scan pause timer

Selects the scan pause time. When receiving signals, the scan pauses according to the scan pause time.

- 2–20 : Scan pauses for 2–20 sec. on a received signal, and is selected in 2 sec. steps. (default: 10 sec.)
- HOLD: Scan pauses on a received signal until it disappears. Rotate [DIAL] to resume manually.

◊ Scan resume timer

Selects scan resume time. Scan resumes after the specified period when the received signal disappears.

- 0 : Scan resumes immediately when the received signal disappears.
- 1–5 : Scan pause 1–5 sec. after the received signal disappears. (default: 2 sec.)
- HOLD: Scan pauses on the received signal even if it disappears. Rotate [DIAL] to resume manually.

◊ Scan stop beep

Turns the scan stop beep function ON and OFF (default).

When the function is activated (“ON” is selected), a long beep will sound each time a signal is received during scan.

No beep is sound when receiving a signal

A long beep is sound when receiving a signal
**Auto repeater**

*U.S.A./KOREA versions only*

The auto repeater function automatically turns ON or OFF the duplex operation and tone encoder. The offset and repeater tone is not changed by the auto repeater function. Reset these frequencies, if necessary.

**U.S.A. version:**
- **OFF**: The auto repeater function is turned OFF.
- **DUP ONLY**: Activates for duplex only. (default)
- **DUP TONE**: Activates for duplex and tone.

**Korea version:**
- **OFF**: Deactivates the function.
- **ON**: Activates duplex and tone. (default)

**DTCS polarity**


(default: BOTH N)
10 SET MODE

◊ Memory bank link function
Sets the memory bank link function ON (default) and OFF. The link function provides continuous bank scan, scanning all contents in the selected banks during bank scan.

• Bank link setting
  1. While pushing and holding [FUNC], rotate [DIAL] to select the desired bank to be linked.
     • “A-ON” to “y-ON” appears.
     • A to H, J, L, N, O to R, T, U and y are available for usage by group
  2. Push [CALL] (MODE•SCAN) to select “ON” to link the bank.

Bank A is linked
Bank Y is linked

³ Repeat steps 1 and 2 to link other banks.
• To cancel the memory bank link function, repeat steps 1 and 2 to select “OFF.”

◊ LCD contrast
Sets the LCD contrast within 1 to 4 levels as desired.

(default: 3)

Contrast 3 setting
Contrast 4 setting

◊ Weather alert function
U.S.A. version only
Turns weather alert function ON and OFF.

Weather alert OFF
Weather alert ON
Weather channel operation

Weather channel selection

1. Select VFO mode with [V/M] (SKIP•S.MW).
2. Push [BAND] (TS•LOCK) several times, or while pushing and holding [BAND] (TS•LOCK) rotate [DIAL] to select the weather channel group.
3. Rotate [DIAL] to select the desired weather channel.

Push [BAND] (TS•LOCK) to change frequency band, or push [V/M] (SKIP•S.MW) to select memory mode.

Weather alert function

NoAA broadcast stations transmit weather alert tones before important weather announcements. When the weather alert function is turned ON, the selected weather channel is monitored once every 5 sec. for the announcement. When the alert signal is detected, the “AL.T” and the WX channel are displayed alternately and sounds a beep tone until the transceiver is operated. The previously selected (used) weather channel is checked periodically during standby or while scanning.

1. Select the desired weather channel.
2. Turn the weather alert function ON in expanded set mode.
   - While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) to enter set mode.
   - Rotate [DIAL] to select “WX ALT,” then rotate [DIAL] while pushing and holding [FUNC] to set ON.
   - Push [SQL] (ATT•SET) to exit set mode.

Push Push and hold Dual operation
11 OTHER FUNCTIONS

3. Set the desired stand-by condition.
   • Select VFO or memory channel.
   • Scan or priority watch operation can also be selected.

4. When the alert is detected, a beep sounds and the following indication will be displayed.

   ![WX list and ALT indications]

   Show above indications alternately.

5. Turn the weather alert function OFF in set mode.

NOTE: While receiving a signal (on a frequency other than the weather alert ON frequency), the receiving signal or audio will be interrupted momentarily every 5 sec. (approx.) in case the alert function is turned ON. This symptom is caused by the WX alert function. To cancel these symptoms, set the weather alert item OFF in set mode.

- Data cloning

   Cloning allows you to quickly and easily transfer the programmed contents from one transceiver to another; or data from a personal computer to a transceiver using the optional CS-P7 CLONING SOFTWARE.

- Cloning between transceivers

   1. Master transceiver:
      While pushing and holding [CALL] (MODE•SCAN), turn power ON to enter cloning mode.
      • The master transceiver is used to send data to the sub-transceiver.

   2. Sub-transceiver:
      While pushing and holding [V/M] (SKIP•S.MW), turn power ON to enter cloning mode.

   ![Master and sub-transceiver diagrams]

   “CLONE” and “m” appear

   “CLONE” appears
OTHER FUNCTIONS

② Connect the OPC-474 cloning cable to the [MIC/SP] jack of the master and sub-transceivers.

③ Push [SQL] (ATT•SET) on the master transceiver.
   • The transceiver show following indications.

<table>
<thead>
<tr>
<th>Master transceiver indications</th>
<th>Sub-transceiver indications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CL OUT</strong></td>
<td><strong>CL IN</strong></td>
</tr>
<tr>
<td>During cloning</td>
<td>After cloning</td>
</tr>
<tr>
<td><strong>CLONE</strong></td>
<td><strong>CL END</strong></td>
</tr>
</tbody>
</table>

④ When cloning is finished, turn power OFF, then ON to exit cloning mode.

◇ Cloning using a personal computer

Data can be cloned to and from a personal computer (Microsoft® Windows® 98/98SE/Me/2000/XP) using the optional CS-P7 CLONING SOFTWARE and the optional OPC-478/478U CLONING CABLE. Consult the CS-P7 CLONING SOFTWARE HELP file for details.

**CAUTION:** Be sure to turn OFF the transceiver when connecting the cloning cable, otherwise cloning operations cannot be performed.

◇ Cloning error

☞ **NOTE: DO NOT** push any key on the sub-transceiver during cloning. This will cause a cloning error.

When the display appears as below, a cloning error has occurred.

In such a case, both transceivers automatically return to the clone standby condition and cloning must be repeated.

Microsoft and Windows are registered trademarks of Microsoft Corporation in the U.S.A. and other countries.
11 OTHER FUNCTIONS

Auto power-off function

The IC-P7A can be set to automatically turn OFF after a specified period in which no operation is performed.

120 min., 90 min., 60 min., 30 min. and OFF can be specified. The specified period is retained even when the transceiver is turned OFF by the auto power-off function. To cancel the function, select “OFF” in step 3 below.

1. While pushing and holding [FUNC], push and hold [SQL] (ATT•SET) for 1 sec. to enter set mode.
2. Rotate [DIAL] to select “AP OFF.”
   • Turn the expanded set mode ON for selection. (p. 39)
3. While pushing and holding [FUNC], rotate [DIAL] to select the desired time or to turn the function OFF.
4. Push [SQL] (ATT•SET) to exit set mode.

TV channel operation

TV channel operation is available only when TV channels are programmed using the optional CS-P7 CLONING SOFTWARE. (p. 61)

TV channel receiving

1. Push [V/M] (SKIP•S.MW) to select VFO mode, if necessary.
2. Push [BAND] (TS•LOCK) several times to select the TV channel band.
   • “TV” and channel number appear.
   • While pushing and holding [BAND] (TS•LOCK), rotating [DIAL] also selects the TV channel band.
3. Rotate [DIAL] to select the desired channel.
   • While pushing and holding [FUNC], rotating [DIAL] selects the all channels including skip channel.

Skip channel setting

Unwanted channels can be skipped for rapid selection, etc.

1. Rotate [DIAL] to select the channel to be skipped.
   • To clear the skip setting, rotate [DIAL] while pushing and holding [FUNC] to select a skip channel.
2. While pushing and holding [FUNC], push [V/M] (SKIP•S.MW) to toggle the skip setting ON and OFF.
   • “SKIP” appears when the channel is set as skip channel.

Automatic TV channel programming

TV channels can be programmed automatically.

Push and hold [CALL] (MODE•SCAN) for 1 sec. to start TV channel programming.
   • The programming will automatically stop when scanning all channels.
Partial reset

If you want to initialize the operating conditions (VFO frequency, VFO settings, set mode contents) without clearing the memory contents, a partial reset function is available for the transceiver.

While pushing and holding [FUNC] and [V/M] (S.MW), turn the power ON to partially reset the transceiver.

All reset

The function display may occasionally display erroneous information (e.g. when first applying power). This may be caused externally by static electricity or by other factors.

If this problem occurs, turn power OFF. After waiting a few seconds, turn power ON again. If the problem persists, perform the following procedure.

- Partial resetting is also available. See left for details.

**IMPORTANT!:**
Resetting the transceiver CLEARS all memory information and initializes all values in the transceiver, including TV channel skip setting.

While pushing and holding [FUNC], [V/M] (S.MW) and [SQL] (ATT•SET), turn the power ON to reset the CPU.

*The displayed frequency differs according to transceiver version.*
### TV channels

The following tables show the channels versus video and audio frequencies depending on each version.

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**12 FREQUENCY TABLE**

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#### MURS channels

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<td>9</td>
<td>467.5875 MHz</td>
</tr>
<tr>
<td>10</td>
<td>467.6125 MHz</td>
</tr>
<tr>
<td>11</td>
<td>467.6375 MHz</td>
</tr>
<tr>
<td>12</td>
<td>467.6625 MHz</td>
</tr>
<tr>
<td>13</td>
<td>467.6875 MHz</td>
</tr>
<tr>
<td>14</td>
<td>467.7125 MHz</td>
</tr>
<tr>
<td>15</td>
<td>467.750 MHz</td>
</tr>
<tr>
<td>16</td>
<td>467.800 MHz</td>
</tr>
<tr>
<td>17</td>
<td>467.840 MHz</td>
</tr>
</tbody>
</table>
### General aviation frequencies (unit: MHz)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>121.500</td>
<td>Emergencies</td>
</tr>
<tr>
<td>122.000</td>
<td>Flight Advisory Service</td>
</tr>
<tr>
<td>122.200</td>
<td>Flight Service Stations</td>
</tr>
<tr>
<td>122.700</td>
<td>Unicom— Uncontrolled airports</td>
</tr>
<tr>
<td>122.725</td>
<td>Unicom— Private airports</td>
</tr>
<tr>
<td>122.750</td>
<td>Unicom— Air-to-air communications</td>
</tr>
<tr>
<td>122.800</td>
<td>Unicom— Uncontrolled airports</td>
</tr>
<tr>
<td>122.900</td>
<td>Search &amp; rescue training, &amp; uncontrolled airports</td>
</tr>
<tr>
<td>122.950</td>
<td>Unicom— Controlled airports</td>
</tr>
<tr>
<td>123.000</td>
<td>Unicom— Uncontrolled airports</td>
</tr>
<tr>
<td>123.025</td>
<td>Helicopters— Air-to-air communications</td>
</tr>
<tr>
<td>123.050</td>
<td>Unicom— Helicopters</td>
</tr>
<tr>
<td>123.075</td>
<td>Unicom— Heliports</td>
</tr>
<tr>
<td>123.100</td>
<td>Search &amp; Rescue</td>
</tr>
<tr>
<td>123.300</td>
<td>Flight Schools</td>
</tr>
<tr>
<td>123.450</td>
<td>Air-to-air communications (unofficial)</td>
</tr>
<tr>
<td>123.500</td>
<td>Flight Schools</td>
</tr>
<tr>
<td>123.600</td>
<td>Flight Service Stations— Uncontrolled airports</td>
</tr>
<tr>
<td>148.125</td>
<td>Civil Air Patrol Repeaters— Secondary</td>
</tr>
<tr>
<td>148.150</td>
<td>Civil Air Patrol Repeaters— Primary</td>
</tr>
<tr>
<td>156.300</td>
<td>Aircraft-to-ship— safety</td>
</tr>
<tr>
<td>156.400</td>
<td>Aircraft-to-ship— commercial</td>
</tr>
<tr>
<td>156.425</td>
<td>Aircraft-to-ship— non-commercial</td>
</tr>
<tr>
<td>156.450</td>
<td>Aircraft-to-ship— commercial</td>
</tr>
<tr>
<td>156.625</td>
<td>Aircraft-to-ship— non-commercial</td>
</tr>
<tr>
<td>156.900</td>
<td>Aircraft-to-ship— commercial</td>
</tr>
<tr>
<td>243.000</td>
<td>Military Emergency “Guard”</td>
</tr>
<tr>
<td>255.400</td>
<td>Flight Advisory Service</td>
</tr>
<tr>
<td>257.800</td>
<td>Civilian Towers</td>
</tr>
<tr>
<td>311.00</td>
<td>SAC Primary</td>
</tr>
<tr>
<td>321.00</td>
<td>SAC Secondary</td>
</tr>
<tr>
<td>381.800</td>
<td>USCG— Primary</td>
</tr>
</tbody>
</table>

### Cable TV (IRC) (unit: MHz)

<table>
<thead>
<tr>
<th>CH</th>
<th>Frequency range</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2– 13</td>
<td>54–216</td>
<td>(same as broadcast VHF)</td>
</tr>
<tr>
<td>14– 22</td>
<td>120–174</td>
<td>Mid band Ch. A–I</td>
</tr>
<tr>
<td>23– 36</td>
<td>216–300</td>
<td>Super band J–W</td>
</tr>
<tr>
<td>37– 53</td>
<td>300–402</td>
<td>Hyper band AA–QQ</td>
</tr>
<tr>
<td>54– 64</td>
<td>402–468</td>
<td>(Ultra band)</td>
</tr>
<tr>
<td>65– 94</td>
<td>468–648</td>
<td>(Ultra band)</td>
</tr>
<tr>
<td>95– 99</td>
<td>90–120</td>
<td>Low band A5–A1</td>
</tr>
<tr>
<td>100–125</td>
<td>648–804</td>
<td>(Ultra band)</td>
</tr>
</tbody>
</table>

### Wireless Microphones

- **169.445 MHz**
- **169.505 MHz**
- **170.245 MHz**
- **170.305 MHz**
- **171.045 MHz**
- **171.105 MHz**
- **171.845 MHz**
- **171.905 MHz**

*Power limited to 1/20 watt. These frequencies are also used at drive-in windows at some fast-food restaurants.*
### Other communications—other countries

#### LPD (Low Power Device) channels (unit: MHz)

<table>
<thead>
<tr>
<th>CH</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>433.075</td>
</tr>
<tr>
<td>2</td>
<td>433.100</td>
</tr>
<tr>
<td>3</td>
<td>433.125</td>
</tr>
<tr>
<td>4</td>
<td>433.150</td>
</tr>
<tr>
<td>5</td>
<td>433.175</td>
</tr>
<tr>
<td>6</td>
<td>433.200</td>
</tr>
<tr>
<td>7</td>
<td>433.225</td>
</tr>
<tr>
<td>8</td>
<td>433.250</td>
</tr>
<tr>
<td>9</td>
<td>433.275</td>
</tr>
<tr>
<td>10</td>
<td>433.300</td>
</tr>
<tr>
<td>11</td>
<td>433.325</td>
</tr>
<tr>
<td>12</td>
<td>433.350</td>
</tr>
<tr>
<td>13</td>
<td>433.375</td>
</tr>
<tr>
<td>14</td>
<td>433.400</td>
</tr>
<tr>
<td>15</td>
<td>433.425</td>
</tr>
<tr>
<td>16</td>
<td>433.450</td>
</tr>
<tr>
<td>17</td>
<td>433.475</td>
</tr>
<tr>
<td>18</td>
<td>433.500</td>
</tr>
<tr>
<td>19</td>
<td>433.525</td>
</tr>
<tr>
<td>20</td>
<td>433.550</td>
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<tr>
<td>21</td>
<td>433.575</td>
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<tr>
<td>22</td>
<td>433.600</td>
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<tr>
<td>23</td>
<td>433.625</td>
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<tr>
<td>24</td>
<td>433.650</td>
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<tr>
<td>25</td>
<td>433.675</td>
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<td>26</td>
<td>433.700</td>
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<td>27</td>
<td>433.725</td>
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<td>28</td>
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<td>29</td>
<td>433.775</td>
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<tr>
<td>30</td>
<td>433.800</td>
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<tr>
<td>31</td>
<td>433.825</td>
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<tr>
<td>32</td>
<td>433.850</td>
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<tr>
<td>33</td>
<td>433.875</td>
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<tr>
<td>34</td>
<td>433.900</td>
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<td>35</td>
<td>433.925</td>
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<td>36</td>
<td>433.950</td>
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<td>37</td>
<td>433.975</td>
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<tr>
<td>38</td>
<td>434.000</td>
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<tr>
<td>39</td>
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<td>40</td>
<td>434.050</td>
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<td>41</td>
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<td>42</td>
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<td>43</td>
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<td>44</td>
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<td>45</td>
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<td>46</td>
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<td>47</td>
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<td>51</td>
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<td>55</td>
<td>434.425</td>
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<tr>
<td>56</td>
<td>434.450</td>
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<tr>
<td>57</td>
<td>434.475</td>
</tr>
<tr>
<td>58</td>
<td>434.500</td>
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</table>

#### PMR446 channels (unit: MHz)

<table>
<thead>
<tr>
<th>CH</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>446.00625</td>
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<tr>
<td>2</td>
<td>446.01875</td>
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<td>3</td>
<td>446.03125</td>
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<td>4</td>
<td>446.04375</td>
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<td>5</td>
<td>446.05625</td>
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<td>6</td>
<td>446.06875</td>
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<tr>
<td>7</td>
<td>446.08125</td>
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<tr>
<td>8</td>
<td>446.09375</td>
</tr>
<tr>
<td>59</td>
<td>434.525</td>
</tr>
<tr>
<td>60</td>
<td>434.550</td>
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<tr>
<td>61</td>
<td>434.575</td>
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<td>62</td>
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<td>63</td>
<td>434.625</td>
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<td>64</td>
<td>434.650</td>
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<tr>
<td>65</td>
<td>434.675</td>
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<tr>
<td>66</td>
<td>434.700</td>
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<tr>
<td>67</td>
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</tr>
<tr>
<td>68</td>
<td>434.750</td>
</tr>
<tr>
<td>69</td>
<td>434.775</td>
</tr>
</tbody>
</table>
## UHF C.R.S (Citizen Radio Service) channels

<table>
<thead>
<tr>
<th>CH</th>
<th>Frequency</th>
<th>CH</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>476.425 MHz</td>
<td>21</td>
<td>476.925 MHz</td>
</tr>
<tr>
<td>2</td>
<td>476.450 MHz</td>
<td>22</td>
<td>476.950 MHz</td>
</tr>
<tr>
<td>3</td>
<td>476.475 MHz</td>
<td>23</td>
<td>476.975 MHz</td>
</tr>
<tr>
<td>4</td>
<td>476.500 MHz</td>
<td>24</td>
<td>477.000 MHz</td>
</tr>
<tr>
<td>5</td>
<td>476.525 MHz</td>
<td>25</td>
<td>477.025 MHz</td>
</tr>
<tr>
<td>6</td>
<td>476.550 MHz</td>
<td>26</td>
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</tr>
<tr>
<td>7</td>
<td>476.575 MHz</td>
<td>27</td>
<td>477.075 MHz</td>
</tr>
<tr>
<td>8</td>
<td>476.600 MHz</td>
<td>28</td>
<td>477.100 MHz</td>
</tr>
<tr>
<td>9</td>
<td>476.625 MHz</td>
<td>29</td>
<td>477.125 MHz</td>
</tr>
<tr>
<td>10</td>
<td>476.650 MHz</td>
<td>30</td>
<td>477.150 MHz</td>
</tr>
<tr>
<td>11</td>
<td>476.675 MHz</td>
<td>31</td>
<td>477.175 MHz</td>
</tr>
<tr>
<td>12</td>
<td>476.700 MHz</td>
<td>32</td>
<td>477.200 MHz</td>
</tr>
<tr>
<td>13</td>
<td>476.725 MHz</td>
<td>33</td>
<td>477.225 MHz</td>
</tr>
<tr>
<td>14</td>
<td>476.750 MHz</td>
<td>34</td>
<td>477.250 MHz</td>
</tr>
<tr>
<td>15</td>
<td>476.775 MHz</td>
<td>35</td>
<td>477.275 MHz</td>
</tr>
<tr>
<td>16</td>
<td>476.800 MHz</td>
<td>36</td>
<td>477.300 MHz</td>
</tr>
<tr>
<td>17</td>
<td>476.825 MHz</td>
<td>37</td>
<td>477.325 MHz</td>
</tr>
<tr>
<td>18</td>
<td>476.850 MHz</td>
<td>38</td>
<td>477.350 MHz</td>
</tr>
<tr>
<td>19</td>
<td>476.875 MHz</td>
<td>39</td>
<td>477.375 MHz</td>
</tr>
<tr>
<td>20</td>
<td>476.900 MHz</td>
<td>40</td>
<td>477.400 MHz</td>
</tr>
</tbody>
</table>
# Troubleshooting

If your transceiver seems to be malfunctioning, please check the following points before sending it to a service center.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>SOLUTION</th>
<th>REF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power comes on.</td>
<td>• The batteries are exhausted.</td>
<td>• Charge the battery pack.</td>
<td>p. 6</td>
</tr>
<tr>
<td></td>
<td>• The battery polarity is reversed.</td>
<td>• Check the battery polarity.</td>
<td>p. 6</td>
</tr>
<tr>
<td>No sound comes from the speaker.</td>
<td>• Volume level is too low.</td>
<td>• Push [▲] to obtain a suitable level.</td>
<td>p. 13</td>
</tr>
<tr>
<td></td>
<td>• Squelch level is set too tight.</td>
<td>• While pushing and holding [SQL], rotate [DIAL] to set the squelch level.</td>
<td>p. 14</td>
</tr>
<tr>
<td></td>
<td>• Different tone is selected with tone/DTCS squelch.</td>
<td>• Turn the appropriate function OFF.</td>
<td>p. 45</td>
</tr>
<tr>
<td>Sensitivity is low and only strong signals are audible.</td>
<td>• Attenuator function is activated.</td>
<td>• While pushing and holding [FUNC], push [SQL] momentarily to turn the attenuator function OFF.</td>
<td>p. 15</td>
</tr>
<tr>
<td>Frequency cannot be set.</td>
<td>• The lock function is activated.</td>
<td>• While pushing and holding [FUNC], push and hold [BAND] for 1 sec. to turn the function OFF.</td>
<td>p. 18</td>
</tr>
<tr>
<td>No beep sound.</td>
<td>• Beep tones are turned OFF or the beep tone level</td>
<td>• Turn beep tone ON or set the beep tone level to appropriate level in <em>set mode</em>.</td>
<td>p. 54</td>
</tr>
<tr>
<td></td>
<td>is too low.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive audio is distorted.</td>
<td>• The operating mode is not selected correctly.</td>
<td>• While pushing and holding [FUNC], push [CALL] several times to select a suitable operating mode.</td>
<td>p. 14</td>
</tr>
<tr>
<td>Transmitting is impossible.</td>
<td>• The battery pack is exhausted.</td>
<td>• Charge the battery pack.</td>
<td>p. 6</td>
</tr>
<tr>
<td></td>
<td>• A frequency outside of the 144/440 MHz amateur</td>
<td>• Set the frequency within the 144/440 MHz amateur bands.</td>
<td>p. 11</td>
</tr>
<tr>
<td></td>
<td>bands is set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No contact possible with another station.</td>
<td>• The other station is using tone squelch.</td>
<td>• Turn the tone squelch function ON.</td>
<td>p. 45</td>
</tr>
<tr>
<td></td>
<td>• The transceiver is set to duplex</td>
<td>• Set to simplex.</td>
<td>p. 19</td>
</tr>
<tr>
<td>Repeater cannot be accessed.</td>
<td>• Wrong offset frequency is programmed.</td>
<td>• Correct the offset frequency.</td>
<td>p. 20</td>
</tr>
<tr>
<td></td>
<td>• Priority watch is paused on the watching frequency</td>
<td>• Correct the subaudible tone frequency</td>
<td>p. 21</td>
</tr>
</tbody>
</table>
Troubleshooting (continued)

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>SOLUTION</th>
<th>REF.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desired set mode item cannot be selected.</td>
<td>• “EXPAND” item is set to OFF.</td>
<td>• Turn “EXPAND” item ON.</td>
<td>p. 49</td>
</tr>
<tr>
<td>Programmed scan does not start.</td>
<td>• Program scan edges are not programmed.</td>
<td>• Program a pair of scan edge channels.</td>
<td>p. 36</td>
</tr>
<tr>
<td>Memory or bank scan does not start.</td>
<td>• No or only one memory or bank channel is pro-</td>
<td>• Program at least 2 memory or bank channels</td>
<td>pgs. 24, 25</td>
</tr>
<tr>
<td>Charging indicator (BC-164) lights red while charging.</td>
<td>• The temperature is too hot or too cold around the charger (BC-164).</td>
<td>• Place the charger within the specified temperature range (+5°C to +35°C; +41°F to +95 °F), then charge the battery pack.</td>
<td>p. 8</td>
</tr>
</tbody>
</table>

■ Optional CP-21LR fuse replacement

If the fuse blows or the charger stops functioning while operating with the optional CP-21LR, find the source of the problem if possible, and replace the damaged fuse with a new, rated one (FGB 2 A) as shown at right.
# Transceivers

## General
- **Frequency coverage**: (unit: MHz)
  - **Transmit**: 144–148, 430–450*\(^1\)
  - **Receive**: 0.495–999.990*\(^1\) to *\(^2\)

<table>
<thead>
<tr>
<th></th>
<th>Transmit</th>
<th>Receive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U.S.A</strong></td>
<td>144–148, 430–450*(^1)</td>
<td>0.495–821.990*(^1) to *(^2)</td>
</tr>
<tr>
<td><strong>Canada</strong></td>
<td>144–148, 430–450*(^1)</td>
<td>0.495–999.990*(^2) to *(^2)</td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td>144–148, 420–450*(^3)</td>
<td>0.495–999.990*(^2) to *(^3)</td>
</tr>
<tr>
<td><strong>Korea</strong></td>
<td>144–146, 430–440</td>
<td>144–146, 430–440</td>
</tr>
<tr>
<td><strong>Taiwan</strong></td>
<td>144–146, 430–432</td>
<td>144–146, 430–432</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>136–173.995*(^2) to *(^3)</td>
<td>400–478.995*(^3)</td>
</tr>
</tbody>
</table>

*\(^1\)Guaranteed 440–450 MHz only, *\(^2\)Guaranteed 144–148 MHz only
*\(^3\)Guaranteed 430–440 MHz only

- **Mode**: FM, AM (Rx only), WFM (Rx only)
- **No. of memory channels**: 1250 (incl. 50 scan edges, 200 auto memory write channels)
- **No. of call channels**: 2 channels
- **Usable temp. range**: –10°C to +60°C; +14°F to +140°F
- **Tuning steps**: 5, 6.25, 8.33, 9, 10, 12.5, 15, 20, 25, 30, 50, 100 and 200 kHz
- **Frequency stability**: ±6 ppm (–10°C to +60°C; +14°F to +140°F)
- **Power supply**: Specified battery pack (3.7 V DC)

## Receiver
- **Receive system**: Double-conversion superheterodyne
- **Intermediate frequencies**: 1st 46.35 MHz (FM/AM) 14.85 MHz (WFM) 2nd 450 kHz
- **Sensitivity**: (except spurious points)
  - FM (at 12 dB SINAD): 30.000–89.995 MHz Less than 0.45 µV 90.000–143.995 MHz Less than 0.2 µV 144.000–147.995 MHz Less than 0.18 µV 148.000–179.995 MHz Less than 0.2 µV 350.000–470.000 MHz 0.18 µV (typical) (430.000–450.000 MHz Less than 0.18 µV) 600.000–939.990 MHz Less than 1.4 µV 940.000–999.990 MHz Less than 2.5 µV

All stated specifications are subject to change without notice or obligation.
Battery pack (BP-243)

- Capacity: 1800 mAh
- Battery voltage: 3.7 V
- Charging temp. range: 0°C to +40°C; +32°F to +104°F
- Usable temp. range: -20°C to +60°C; -4°F to +140°F
- Storage temp. range:
  - Within 1 month: -20°C to +50°C; -4°F to +122°F
  - Within 3 months: -20°C to +35°C; -4°F to +95°F
  - Within 1 year: -20°C to +20°C; -4°F to +68°F
- Dimensions: 35.3(W)×11.4(H)×53.1(D) mm; 13/8(W)×7/16(H)×23/32(D) in
- Charging period (approx.): 3 hrs.
- Battery life*: 20 hrs.

* Operating periods are calculated under the following conditions:
  Tx : Rx : standby = 5 : 5 : 90, power save function: auto setting is activated

Battery charger (BC-164)

- Power supply: 12 to 16 V DC or the specified Icom AC adapter (BC-145LA/LE/LV)
- Charging current: 760 mA±10%
- End voltage: 4.2 V±0.1 V
- Charging temp. range: +5°C to +35°C; +41°F to +95 °F
- Dimensions (projections not included):
  - 67(W)×86.5(H)×50(D) mm; 25/8(W)×313/32(H)×13/32(D) in
- Weight (approx.): 95 g; 3.4 oz
15 OPTIONS

## Options

- **AD-92SMA ANTENNA CONNECTOR ADAPTER**
  - Allows you to connect an external antenna with a BNC connector.

- **OPC-782 PLUG ADAPTER CABLE**
  - Used for connection with an Icom speaker-microphone or earphone.

- **SP-13 EARPHONE**
  - Provides clear receive audio in noisy environments. An optional OPC-782 is required for connection.

- **CP-21LR CIGARETTE LIGHTER CABLE WITH NOISE FILTER**
  - Allows you to charge the transceiver using supplied BC-164 BATTERY CHARGER.

- **BP-243 LI-ION BATTERY PACK**
  - 3.7 V/1800 mAh Lithium ion battery pack. Same as supplied one.

- **OPC-474 CLONING CABLE**
  - For connection between transceivers for data cloning.

- **CS-P7 CLONING SOFTWARE + OPC-478U CLONING CABLE (USB type)**
  - Allows you to transfer data, such as memories, and quickly and easily edit and store data via a PC (for Microsoft® Windows® 98/Me/2000/XP). Current RS-232C (DB 9-pin) type cloning cable, OPC-478, is also available.

- **BC-145LA/LE/LV AC ADAPTER**
  - Same as supplied AC adapter with BC-164. (Not supplied with some versions)
  - Regularly charges the installed battery pack into transceiver.
◊ **HM-153 EARPHONE MICROPHONE**
An optional OPC-782 is required for connection.

**NOTE:** Connect the OPC-782 after removing the [MIC/SP] cap (MIC/SP jack cover). Keep the [MIC/SP] cap attached when jack are not in use to keep the contact clean.

◊ **HM-153P EARPHONE MICROPHONE**
Connects to the IC-P7A directly (without the OPC-782).

**NOTE:** Connect the HM-153P after removing the [MIC/SP] cap (MIC/SP jack cover). Keep the [MIC/SP] cap attached when jack are not in use to keep the contact clean.
15 OPTIONS

◊ HM-128 EARPHONE MICROPHONE
An optional OPC-782 is required for connection.

◊ HM-131 SPEAKER MICROPHONE
An optional OPC-782 is required for connection.

◊ LC-161 CARRYING CASE
Helps protect the transceiver from scratches, etc.

**NOTE:** When using as below illustration, tension release loop protects the [MIC/SP] connector from being damaged by cable stress or vibration.
Important operating instructions are summed up in this and the following page for your simple reference. By cutting along the line and folding on the dotted line, it will become a card sized operating guide which can easily be carried in a card case or wallet, etc.

**ICOM POCKET GUIDE IC–P7A**

**VFO and memory mode selection**
- Push [V/M] to toggle between VFO and memory mode.

**Operating mode selection**
- While pushing and holding [FUNC], push [CALL] several times to select the desired mode.

**Audio level setting**
- Push [▲] to increase, push [▼] to decrease the audio level.

**Squelch level setting**
- While pushing [SQL], rotate [DIAL] to set the squelch level.

**Frequency band selection**
- Push [BAND] several times, or while pushing and holding [BAND], rotate [DIAL] to select the desired frequency band.

**Tuning step selection**
- While pushing and holding [FUNC], push [BAND] to enter tuning step selection. Then rotate [DIAL] to select the desired tuning step.
  - Push [BAND] again to return to the previous condition.

**Key lock function**
- While pushing and holding [FUNC], push [BAND] for 1 sec. to toggle the key lock function ON and OFF.
  - “L” appears when the lock function is in use.

**Monitor function**
- Push and hold [SQL].
  - The 1st segment of S/RF meter blinks.

**Frequency setting**
1. Push [V/M] to select VFO mode.
2. Rotate [DIAL] to set the desired operating frequency.
   - While pushing [FUNC], dial rotation changes frequency in 1 MHz steps.

**Attenuator function**
- While pushing and holding [FUNC], push [SQL] to toggle the attenuator function ON and OFF.
  - “ATT” appears when the attenuator function is in use.

**Transmit power setting**
- While pushing and holding [FUNC], push [PTT] to toggle the transmit output power High and Low.
  - “LOW” appears when the low output power is selected.

**Set mode setting**
1. While pushing and holding [FUNC], push and hold [SQL] for 1 sec. to enter set mode.
2. Rotate [DIAL] to select the desired item.
3. While pushing and holding [FUNC], rotate [DIAL] to set the desired value or condition.

**Memory channel selection**
1. Push [V/M] to select memory mode.
2. Rotate [DIAL] to set the desired memory channel.
   - While pushing [FUNC], dial rotation changes memory channel in 10 channels steps.
Memory bank channel selection
1. Push [V/M] to select memory mode.
2. Push [BAND] several times, or while pushing and holding [BAND], rotate [DIAL] to select the desired bank group.
3. Rotate [DIAL] to select the desired bank channel.

Call channel selection
1. Push [CALL] to select call channel mode.
2. Rotate [DIAL] to select the desired call channel.
   • Push [CALL] again or push [V/M] to return to the previous condition.

Memory channel programming
1. Set the desired frequency and other functions in VFO mode.
2. Push and hold [V/M] for 1 sec. to enter select memory write mode.
   • 1 short and 1 long beeps sound.
3. Rotate [DIAL] to select the desired memory channel number.
4. Push and hold [V/M] for 1 sec. again to program the contents into the selected channel.
   • 3 beeps sound.

Scan skip setting
1. Push [V/M] to select memory mode.
2. Rotate [DIAL] to select the desired memory channel.
3. While pushing and holding [FUNC], push [V/M] to set the skip setting (skip channel or skip frequency) ON and OFF.

VFO scans
1. Push [V/M] to select VFO mode.
2. Push and hold [CALL] for 1 sec.
   • One of scan type “ALL,” “BAND” or “PROG xx” (xx= 0–24) appears.
3. Rotate [DIAL] to select the desired scan type. Push [CALL] again to start the scan.
   • Rotate [DIAL] to change the scanning direction.
   • During scan, push [V/M] to start auto memory write scan.
4. Push [CALL] again to stop the scan.

Memory scans
1. Push [V/M] to select memory mode.
2. Push and hold [CALL] for 1 sec.
   • One of scan type “M ALL,” “B ALL,” “B LINK” or “BANK” appears, if memory banks are assigned.
3. Rotate [DIAL] to select the desired scan type. Push [CALL] again to start the scan.
   • Rotate [DIAL] to change the scanning direction.
4. Push [CALL] again to stop the scan.