

ICOM INSTRUCTIONS

VHF P25 TRANSCEIVERS IC-F7010T/IC-F7010S

UHF P25 TRANSCEIVERS IC-F7020T/IC-F7020S IC-F7040T/IC-F7040S

Thank you for choosing this Icom product.
READ ALL INSTRUCTIONS carefully and completely before using this product.

IMPORTANT

This instruction sheet includes some functions that are usable only when they are preset by your dealer. The transceiver may have other functions and operations that are not described in this instruction sheet. Ask your dealer for preset function details.

EXPLICIT DEFINITIONS

WORD	DEFINITION
⚠ DANGER!	Personal death, serious injury or an explosion may occur.
⚠ WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:

- Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightning, other natural disasters, disturbances, riots, war, or radioactive contamination.
- The use of Icom transceivers with any equipment that is not manufactured or approved by Icom.

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Icom Inc.

Count on us!

1-1-32 Kamiminami, Hirano-ku,
Osaka 547-0003, Japan

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FCC INFORMATION

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

PRECAUTIONS

⚠ DANGER! NEVER short the terminals of the battery pack. Shorting may occur if the terminals touch metal objects such as a key, so be careful when placing the battery packs (or the transceiver) in bags, and so on. Carry them so that shorting cannot occur with metal objects. Shorting may damage not only the battery pack, but also the transceiver.

⚠ DANGER! NEVER use or charge Icom battery packs with non-Icom transceivers or non-Icom chargers. Only Icom battery packs are tested and approved for use with Icom transceivers or charged with Icom chargers. Using third-party or counterfeit battery packs or chargers may cause smoke, fire, or cause the battery to burst.

⚠ DANGER! NEVER operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere.

⚠ 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 headset or other audio accessories at high volume levels. The continuous high volume operation may cause a ringing in your ears. If you experience the ringing, reduce the volume level or discontinue use.

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

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

CAUTION: DO NOT expose the transceiver to rain, snow or any liquids. The transceiver meets IP68 requirements for dustprotection and splash resistance. However, once the transceiver has been dropped, dust protection and splash resistance cannot be guaranteed due to the fact that the transceiver may be cracked, or the waterproof seal damaged, and so on.

Electromagnetic Interference/Compatibility

During transmissions, your Icom radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

Occupational/Controlled Use

The radio transmitter is used in situations in which persons are exposed as a consequence of their employment, provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

RECOMMENDATION

CLEAN THE TRANSCEIVER THOROUGHLY IN A BOWL OF FRESH WATER after exposure to saltwater, and dry it before operating. Otherwise, the transceiver's keys, switches, and controllers may become unusable, due to salt crystallization, and/or the charging terminals of the battery pack may corrode.

NOTE: If the transceiver's waterproof protection appears defective, carefully clean the transceiver with a soft, damp (fresh water) cloth, then dry it before operating. The transceiver may lose its waterproof protection if the case, jack cap, or connector cover is cracked or broken, or the transceiver has been dropped. Contact your Icom distributor or your dealer for advice.

VOICE CODING TECHNOLOGY

The AMBE+2™ voice coding Technology embodied in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice coding Technology is licensed solely for use within this Communications Equipment. The user of this Technology is explicitly prohibited from attempting to extract, remove, decompile, reverse engineer, or disassemble the Object Code, or in any other way convert the Object Code into a human-readable form. U.S. Patent Nos. #8,595,002, #8,359,197, #8,315,860, #8,200,497, #7,970,606, #6,912,495 B2.

ABOUT GPS/GLONASS RECEIVER

An internal GPS or GLONASS receiver may not work if the transceiver transmits or receives in the frequency ranges as shown below. This problem is made in the internal circuit and does not indicate a transceiver malfunction.

	GPS receiver	GLONASS receiver
Transmit	142.850 ~ 142.860	145.275 ~ 145.945
	157.135 ~ 157.145	159.805 ~ 160.540
Receive	146.845 ~ 147.110	149.745 ~ 150.790

	GPS receiver	GLONASS receiver
Transmit	392.840 ~ 392.865	399.515 ~ 401.343
Receive	443.545 ~ 444.065	449.335 ~ 451.425

	GLONASS receiver
Transmit	799.0375 ~ 802.6875
Receive	856.1815 ~ 859.8375

DO NOT place or leave the transceiver in direct sunlight or in areas outside of the specified temperature range: -30°C (-22°F) ~ +60°C (+140°F)

Keep the transceiver in a secure place to prevent use by unauthorized persons.

⚠ Battery caution

Misuse of Li-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! NEVER solder the battery terminals, or NEVER modify the battery pack. This may cause heat generation, and the battery may burst, emit smoke or catch fire.

⚠ DANGER! NEVER place or leave battery packs in areas with temperatures above 60°C (140°F). High temperature buildup in the battery cells, such as could occur near fires or stoves, inside a sun-heated vehicle, or in direct sunlight for long periods of time may cause the battery cells to rupture or catch fire. Excessive temperatures may also degrade the battery pack's performance or shorten the battery cell's life.

⚠ DANGER! NEVER strike or otherwise impact the battery pack. Do not use the battery pack if it has been severely impacted or dropped, or if the pack has been subjected to heavy pressure. Battery pack 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 expose the battery pack to rain, snow, seawater, or any other liquids. Do not charge or use a wet pack. If the pack gets wet, be sure to wipe it dry before using.

⚠ DANGER! NEVER place or leave battery packs near fire. Fire or heat may cause them to rupture or explode. Dispose of used battery packs in accordance with local regulations.

⚠ DANGER! NEVER let fluid from inside the battery get in your eyes. This can cause blindness. Rinse your eyes with clean water, without rubbing them, and immediately go to a doctor.

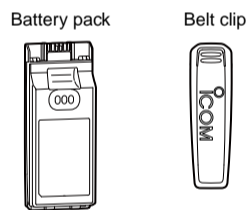
⚠ WARNING! NEVER put the battery pack in a microwave oven, high-pressure container, or in an induction heating cooker. This could cause a fire, overheating, or cause the battery cells to rupture.

⚠ WARNING! NEVER use the battery pack 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! NEVER let fluid from inside the battery cells come in contact with your body. If it does, immediately wash with clean water.

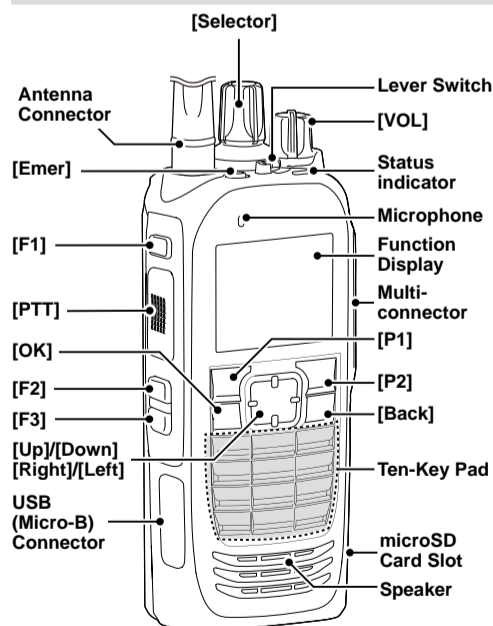
CAUTION: DO NOT use the battery pack out of the specified temperature range for the transceiver (-30°C ~ +60°C (-22°F ~ +140°F)) and the battery itself (-20°C ~ +60°C (-4°F ~ +140°F)). Using the battery out of its specified temperature range will reduce its performance and battery cell's life. Please 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.

SUPPLIED ACCESSORIES



NOTE: Some accessories are not supplied, or the shape is different, depending on the transceiver version.

PANEL DESCRIPTION



⚠ About the transceiver types

There are 2 types of transceivers.
IC-F7010S/IC-F7020S/IC-F7040S: Simple key types
IC-F7010T/IC-F7020T/IC-F7040T: Ten-key types

⚠ About the Status indicator

- Lights blue, then blinks red, yellow, and green when turning ON the transceiver.
- Lights red while transmitting.
- Lights green while receiving a signal, or when the squelch is open.
- Blinks magenta when the battery is exhausted.

⚠ About the Multi-connector

Connects to an optional speaker microphone or headset.

CAUTION: DO NOT use the transceiver without the connector cover or the optional equipment attached. The transceiver meets IP68 requirements for dust-tight and waterproof protection only when the connector cover or the optional HM-222 is attached.

⚠ About the Software key functions

NOTE: Your dealers can assign the Software key functions to the keys, keypads, and the Lever switch.

CAUTION: DO NOT leave the pack fully charged, completely discharged, or in an excessive temperature environment (above 50°C, 122°F) for an extended period of time. If the battery pack must be left unused for a long time, it must be detached from the transceiver after discharging. You may use the battery pack until the remaining capacity is about half, then keep it safely in a cool and dry place at the following temperature range: -20°C ~ +50°C (-4°F ~ +122°F) (within a month) -20°C ~ +40°C (-4°F ~ +104°F) (within three months) -20°C ~ +20°C (-4°F ~ +68°F) (within a year)

BE SURE to replace the battery pack with a new one approximately five years after manufacturing, even if it still holds a charge. The material inside the battery cells will become weak after a period of time, even with little use. The estimated number of times you can charge the pack is between 300 and 500. Even when the pack appears to be fully charged, the operating time of the transceiver may become short when:

- Approximately 5 years have passed since the pack was manufactured.
- The pack has been repeatedly charged.

⚠ Charging caution

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

⚠ WARNING! NEVER charge the transceiver during a lightning storm. It may result in an electric shock, cause a fire or damage the transceiver. Always disconnect the power adapter before a storm.

⚠ WARNING! NEVER 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:

BC-214: (16°C ~ 40°C (60.8°F ~ 104°F))

BC-219N: (16°C ~ 40°C (60.8°F ~ 104°F))

Otherwise, the charging time will be longer, but the battery will not reach a full charge. While charging, at a point after the temperature goes out of the specified range, the charging will automatically stop.

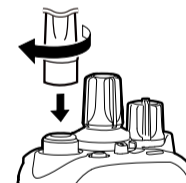
ATTACHING ACCESSORIES

⚠ Flexible antenna

Connect the antenna to the antenna connector.

CAUTION:

- DO NOT carry the transceiver by holding only the antenna.
- DO NOT connect an antenna other than those listed in the INSTRUCTIONS.
- Transmitting without an antenna may damage the transceiver.

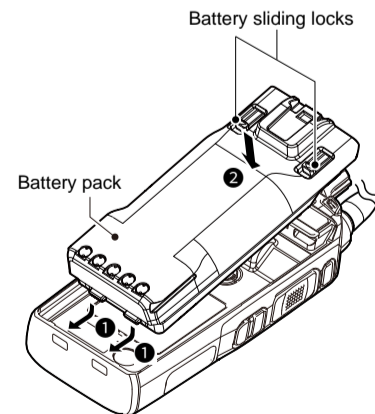


⚠ Battery pack

CAUTION: DO NOT attach or detach the battery pack when the transceiver is wet or soiled. This may result in water or dust getting into the transceiver/battery pack and may damage the transceiver.

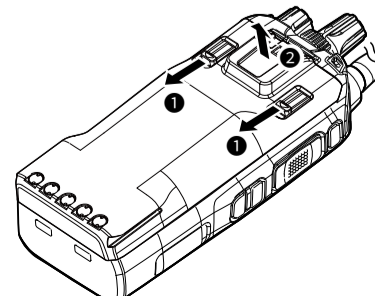
To attach:

1. Slide the battery pack in the direction of the arrow. (1)
2. Push the battery pack until the battery sliding locks make a 'click' sound. (2)



To detach:

1. Push both battery sliding locks in the direction of the arrow. (1)
2. Lift up to detach the battery pack. (2)

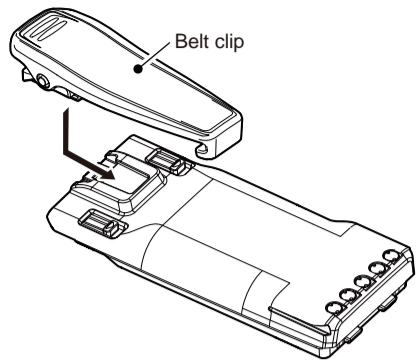


ATTACHING ACCESSORIES (Continued)

◇ Belt clip

To attach:

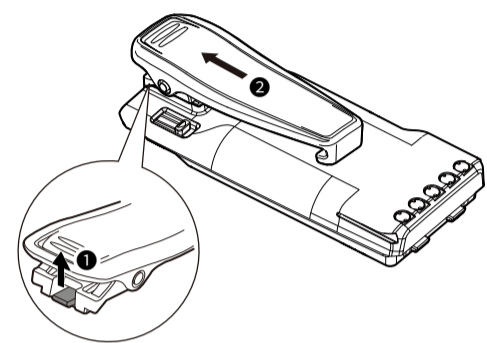
1. Remove the battery pack from the transceiver, if it is attached.
2. Slide the belt clip in the direction of the arrow until the belt clip is locked and makes a 'click' sound.



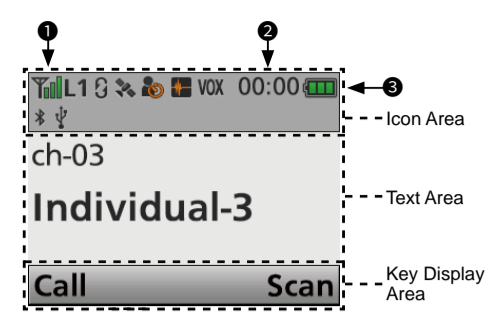
To detach:

- Lift the tab up (1), and slide the belt clip in the direction of the arrow (2).

BE CAREFUL! DO NOT break your fingernail



FUNCTION DISPLAY



NOTE: The screen capture is an example. The displayed position of each icon may differ, depending on the function being used.

◇ Icon Area

Indicators

1 SIGNAL STRENGTH INDICATOR

Displays the relative receive signal strength level.

2 CLOCK

Displays the current time.

- ① "AM" or "PM" is displayed beside the time display when 12 hour display format is selected.

3 BATTERY INDICATOR

Displayed or blinks to indicate the battery status.

Indication				
Battery Status	Full	Mid	Charging required	Battery exhausted

blinks when the battery is exhausted.

Icons

The following icons are displayed in the Icon Area.

POWER ICON

- "L1" is displayed when the output power is set to Low.
- "L2" is displayed when the output power is set to Mid.
- "H" is displayed when the output power is set to High.

AUDIBLE ICON

Displayed when the channel is in the 'audible' (unmute) mode.

MESSAGE ICON

- Blinks after messages (Message or Status Message) have been received.
- Stops blinking when the screen is changed, or any key is pushed, but is displayed if unread messages are still in the Message memory.
- Disappears when all messages in the Message memory have been read.

BELL ICON

Displayed when a matching signal is received, depending on the presetting.

SCAN ICON

- Displayed when a scan is paused.
- Blinks while scanning.

SCAN TARGET CHANNEL ICON

Displayed when a matching signal is received, depending on the presetting.

BATTERY CHARGING (Continued)

◇ Rapid charging with the BC-214

You can rapidly charge up to 6 battery packs with the optional BC-214.

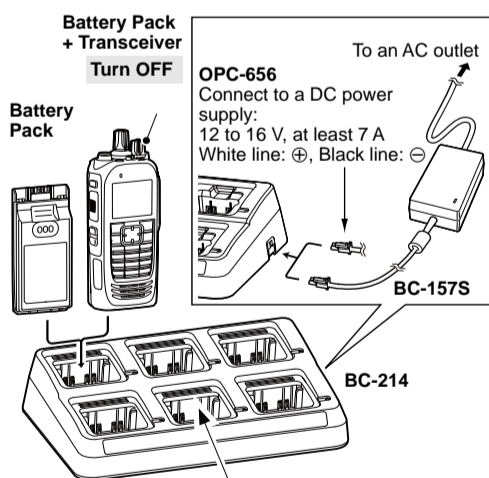
Charging time:

Approximately 4.6 hours for the BP-284

Additionally needed item (purchase separately):

- The BC-157S AC ADAPTER or the OPC-656 dc power cable
- The AD-132N CHARGER ADAPTER (may be supplied with the charger, depending on the charger version)

CAUTION: NEVER reverse the polarity when connecting the OPC-656 to a power source. This will ruin the battery charger.
White line: ⊕, Black line: ⊖



* Charger adapter's shape may differ, depending on the charger version.

BASIC OPERATION

◇ Turning ON the transceiver

NOTE: Before using the transceiver for the first time, the battery pack must be fully charged for optimum life and operation. See the BATTERY CHARGING section of this sheet.

Rotate [VOL] to turn ON the transceiver.

◇ Receiving and Transmitting

Receiving:

1. Select a channel.
① Rotate [Selector] or push [Up] or [Down], depending on the presetting.
2. When receiving a call, rotate [VOL] to adjust the audio output level to a comfortable listening level.

Transmitting:

CAUTION: Attach an antenna before transmitting. Transmitting without an antenna may damage the transceiver.

1. Wait until the channel is clear to avoid interference.
2. While holding down [PTT], speak at your normal voice level.
3. Release [PTT] to receive.

IMPORTANT:

To maximize the readability of your signal:

1. After pushing [PTT], pause briefly before you start speaking.
2. Hold the microphone 5 to 10 cm (2 to 4 inches) from your mouth, then speak at your normal voice level.

OPTIONS

◇ BATTERY PACKS

- **BP-283 LI-ION BATTERY PACK**
Voltage: 7.2 V
Capacity: 1950 mAh (minimum), 2010 mAh (typical)
Battery life: Approximately 9 hours (IC-F7010T/IC-F7010S)
- **BP-284 LI-ION BATTERY PACK**
Voltage: 7.2 V
Capacity: 3120 mAh (minimum), 3210 mAh (typical)
Battery life: Approximately 14 hours*¹ (IC-F7010T/IC-F7010S)

*¹ When the power save function is set to "Short," and the operating periods are calculated under the following conditions:
TX : RX : standby = 5 : 5 : 90

SCRAMBLER/ENCRYPTION ICON

In the Analog mode:

Displayed when the Voice Scrambler function is ON.

In the Digital mode:

- Displayed when the Voice Encryption function is ON.
- Blinks when decoding an encrypted signal.

GPS ICON

- Displayed when valid position data is received.
- Blinks when searching for satellites or calculating position data.

RECORD ICON

- Displayed when the Record function is ON.
- Blinks while recording audio.

① is displayed when there is no microSD card free space and audio cannot be recorded.

TALK AROUND ICON

Displayed when the Talk Around function is ON.

PHONE ICON

- Displayed when the transceiver is connected to a telephone network on the selected channel.
- Blinks while receiving a phone call.

SITE LOCK ICON

Displayed when the Site Lock function is ON.

LONE WORKER ICON

Displayed when the Lone Worker function is ON.

MOTION SENSOR ICON

Displayed when the Motion Sensor function is ON.

NOISE CANCEL ICON

Displayed when the Noise Cancel function is ON.

SURVEILLANCE ICON

Displayed when the Surveillance function is ON.

VIBRATION ICON

Displayed when the Vibration function is ON.

VOX ICON

Displayed when the VOX function is ON.

Bluetooth® ICON

- Displayed when Bluetooth® is activated.
- Lights Blue when a Bluetooth® device is connected.
- Does not light when no Bluetooth® device is connected.

microSD ICON

Displayed when a microSD card is inserted into the card slot.

- is displayed when the microSD card has not been formatted.

USB ICON

Displayed when a USB device is connected.

◇ Text Area

Displays the selected Zone number, Channel number, and Channel name, if set.

◇ Key Display Area

Displays the names of the function assigned to [P1] and [P2]. Ask your dealer about the assigned Software key functions.

BATTERY CHARGING

NOTE:

- Before detaching or attaching a battery pack, BE SURE to turn OFF the transceiver by rotating [VOL] fully counter clockwise, until it makes a "click" sound. Otherwise, a transceiver malfunction could occur.
- The internal clock will be reset to 00:00 if an exhausted battery is left in the transceiver, or the battery pack is detached, for long periods of time.

◇ Rapid charging with the BC-219N/BC-225

You can rapidly charge the Li-ion battery pack with the BC-219N or BC-225.

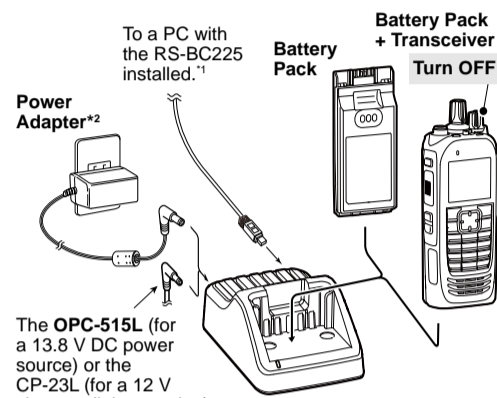
Charging time:

BC-219N: Approximately 4.5 hours for the BP-284
BC-225: Approximately 4.3 hours for the BP-284

Additionally needed item (purchase separately):

- A power adapter (may be supplied with the charger, depending on the charger version) or the OPC-515L/CP-23L DC POWER CABLES.
- A USB cable to connect the PC and BC-225 when using the RS-BC225.

CAUTION: NEVER reverse the polarity when connecting the OPC-515L to a power source. This will ruin the battery charger.
White line: ⊕, Black line: ⊖



The OPC-515L (for a 13.8 V DC power source) or the CP-23L (for a 12 V cigarette lighter socket) can be used instead of the power adapter.

*¹ The RS-BC225 is usable for only with the BC-225.

*² A different type, or no power adapter is supplied, depending on the charger version.

◇ OTHERS

• **AD-118 ACC ADAPTER**
To connect an accessory. See the AD-118 instruction sheet for details of recommended accessories.

CAUTION: The AD-118 does not have waterproof protection. When it is connected, NEVER expose the adapter and the transceiver to rain, snow or any liquids.

- **LC-184 CARRYING CASE**
For the Simple key types and Ten-key types.
- **VS-4MC PTT SWITCH CABLE**
+ **HS-94, HS-95, HS-97 HEADSET**
VS-4MC: Used to connect a headset to a transceiver.
HS-94: Ear-hook type
HS-95: Neck-arm type
HS-97: Throat microphone
- **HM-222 SPEAKER MICROPHONE**
With an Emergency key.
The HM-222 meets IP68 requirements for waterproof protection.
- **VS-3 Bluetooth® HEADSET**
The Bluetooth® headset with a [PTT] switch.
- **About the third party Bluetooth® headsets:**
Icom has checked the PTT operation with some 3M Peltor headsets such as the WS Headset XP, WS ProTac XP and WS Alert XP. (Compatibility not guaranteed.)

○ For only the IC-F7040T/IC-F7040S

- **VS-5MC PTT SWITCH CABLE**
+ **HS-94, HS-95, HS-97 HEADSET**
VS-5MC: Used to connect a headset to a transceiver.
HS-94: Ear-hook type
HS-95: Neck-arm type
HS-97: Throat microphone
- **HM-163MC TIEPIN TYPE MICROPHONE**
+ **EH-15B EARPHONE, SP-28 EAR HOOK TYPE EARPHONE**
- **SP-32 TUBE TYPE EARPHONE ADAPTER**
For use with EH-15B.
- **SP-27 TUBE EARPHONE, SP-29 EAR HOOK TYPE EARPHONE, SP-40 EARPHONE + AD-135 EARPHONE ADAPTER**
AD-135: Used To connect an earphone to the transceiver's multi-connector.

Some options may not be available in some countries. Ask your dealer for details.

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◇ BELT CLIPS and BELT HANGERS

- **MB-133** belt clip
 - **MB-136** belt clip
- Rotating type.
- **MB-96F, MB-96FL, MB-96N** BELT HANGERS

◇ ANTENNA

- **FA-S81VS, FA-S82VS, FA-S83VS, FA-S81US, FA-S82US** STUBBY ANTENNAS

Shorter VHF or UHF antennas.

FA-S81VS: 136 ~ 150 MHz FA-S82VS: 150 ~ 162 MHz
FA-S83VS: 160 ~ 174 MHz FA-S81US: 400 ~ 450 MHz
FA-S82US: 450 ~ 490 MHz

- **FA-S81V, FA-S82V, FA-S83V, FA-S81U, FA-S82U, FA-S83U** FLEXIBLE ANTENNAS

VHF or UHF antennas.

FA-S81V: 136 ~ 150 MHz FA-S82V: 148 ~ 162 MHz
FA-S83V: 160 ~ 174 MHz FA-S81U: 380 ~ 430 MHz
FA-S82U: 430 ~ 480 MHz FA-S83U: 470 ~ 520 MHz

- **FA-S67VC, FA-S76UC** CUT ANTENNAS

FA-S67VC: 136 ~ 174 MHz FA-S76UC: 380 ~ 520 MHz
• **FA-S100U** ANTENNA
760 ~ 870 MHz