## **Preface**

Thank you for purchasing HYT TC-518 portable radio. The main function keys are located on one side of the radio, so you can have convenient one-hand operation; the orange anti-skid PTT key is also ergonomically designed; in addition, the knobs are protected against damage due to accidental drop. All these advantages help TC-518 possess reliability and durability.

This easy-to-use radio will deliver you secure, instant and reliable communications at peak efficiency. Please read this manual carefully before use. The information presented herein will help you to derive maximum performance from your radio.

MODELS COVERED IN THIS MANUAL

TC-518 VHF Two-way Radio

TC-518 UHF Two-way Radio

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## **Safety Information**

The following safety precautions shall always be observed during operation, service and repair of this equipment.

- ♦ This equipment shall be serviced by qualified technicians only.
- ♦ Do not modify the radio for any reason.
- ♦ Use only HYT supplied or approved batteries and chargers.
- To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any area where posted notices instruct you to do so. Turn off your radio before boarding an aircraft. Any use of a radio must be in accordance with airline regulations or crew instructions.
- ♦ For vehicles with an air bag, do not place a radio in the area over an air bag or in the air bag deployment area.
- Turn off your radio prior to entering any area with explosive and flammable materials.
- ♦ Do not charge your battery in a location with explosive and flammable materials.
- ♦ Turn off your radio before entering a blasting area.
- ♦ Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.
- Do not expose the radio to direct sunlight over a long time, nor place it close to heating source.
- When transmitting with a portable radio, hold the radio in a vertical position with the microphone 3 to 4 centimeters away from your lips. Keep antenna at least 2.5 centimeters away from your body when transmitting.



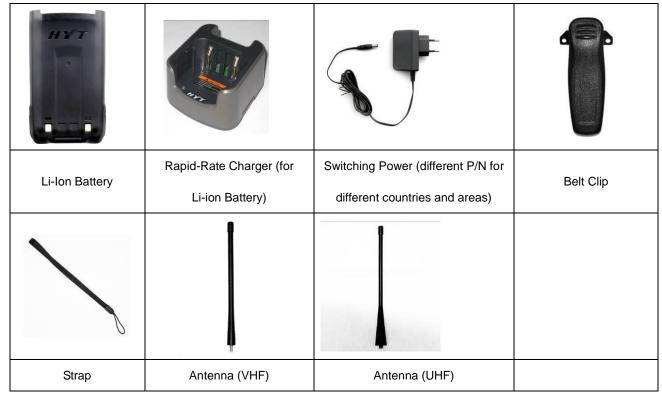
**WARNING:** If you wear a radio on your body, ensure the radio and its antenna are at least 2.5 centimeters away from your body when transmitting.

# **Product Inspection**

Please unpack the package box carefully and check that all items shipped are received; report any missing or damaged items to your dealer.

#### **Accessories**

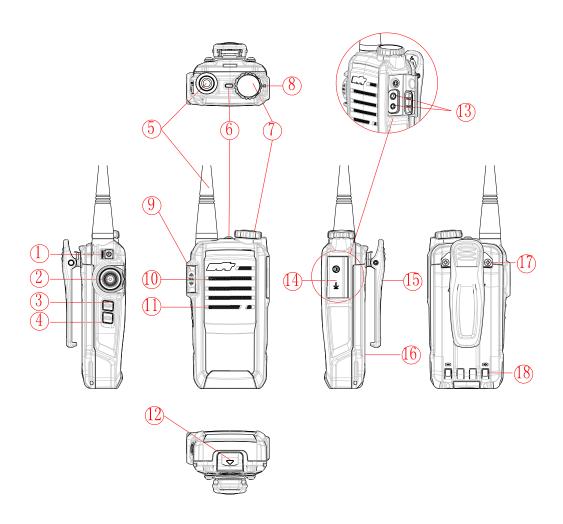
Item	Qty. (PCS)
Antenna	1
Belt Clip	1
Strap	1
Battery	1
Rapid-Rate Charger	1
Switching Power	1
Owner's Manual	1



#### Note:

- Note: Frequency band is marked on the label of antenna, if not, please refer to the label on the radio unit for detailed frequency band information.
- 2. The radio unit is shipped with the screws of belt clip mounted from the factory.

## **Radio Overview**



(1) Power On/Off Key	(2) PTT (Push-to-Talk) Key	(3) SK1 (Side Key 1)	(4) SK2 (Side Key 2)
(5) Antenna	(6) LED Indicator	(7) Channel Selector Knob	(8) Channel Indicator
(9) Volume Control Knob	(10) Microphone	(11) Speaker	(12) Battery Latch
(13) Accessory Jack	(14) Accessory Jack Cover	(15) Belt Clip	(16) Battery
(17) Screw (Belt Clip)	(18) Charging Piece		

## \*PTT (Push-to-Talk) Key

Hold down the **PTT** key and speak into the microphone to transmit, and release it to receive.

## \*SK1 (Side Key 1) / SK2 (Side Key 2)

Side Key 1 and Side Key 2 are programmable keys that can be assigned with long/short

press functions by your dealer.

## Note:

Short Press	Key press no longer than 1 second.
Long Press	Key press longer than 1 second.

## \*LED Indicator

LED indications and alert tones are shown in the table below (see Advanced Operations for details):

Status	LED Indication and Alert Tone		
	1. The power-on alert tone is heard when the radio is		
Power On	powered on.		
1 Ower Off	2. When the current channel is a blank channel, beeps		
	are heard.		
	The LED flashes blue if no operation is made or no carrier		
Radio Standby	is present within 2s. Your dealer can enable/disable this		
	LED indication.		
Low Battery Alert	The LED flashes red and a low pitched tone is heard		
Low Battory Filori	every ten seconds.		
	Red LED glows while the radio is transmitting.		
	2. When transmission times out, continuous beeps are		
	heard.		
Transmitting	3. TOT Pre-alert: one beep is heard.		
Transmang	4. Transmitting PTT ID: continuous beeps		
	(programmable by your dealer) are heard.		
	5. Transmitting PTT ID is completed: a short beep		
	(programmable by your dealer) is heard.		
Receiving	The LED glows green when carrier presents.		
	1. The LED flashes green every 1 second when		
Scanning	scanning is in process.		
	2. Scan Start Tone (programmable by your dealer): one		

	beep is heard.	
	3. Green LED solidly glows when signal is received.	
	4. Scan Stop Tone (programmable by your dealer): one	
	beep is heard.	
Devices Adjust	Switch to low power: a low pitched tone is heard.	
Power Adjust	Switch to high power: a high pitched tone is heard	
VOX/Compandor/Scrambler/	Enable functions: one beep is heard.	
Channel Lock	Disable functions: two continuous beeps are heard.	

#### \* Channel Indicator

Used to indicate the currently selected channel.

### \* Battery Latch

Used to secure or remove the battery.

#### \*Earpiece Jack & Programming Port

Used to connect accessories such as speaker/microphone, earpiece, programming cable and cloning cable.

## **Battery Information**

#### **Initial Use**

New batteries are shipped uncharged from the factory. Charge a new battery for 5 hours before initial use. The maximum battery capacity and performance is achieved after three full charge/discharge cycles. If you notice the battery power runs low, please recharge the battery.

### **Applicable Battery Packs**

To reduce the risk of injury, charge only the battery specified by the manufacturer. Other batteries may burst, causing bodily injury and property damage.

#### Caution:

- 1. To avoid risk of personal injury, do not dispose of batteries in a fire!
- 2. Dispose of batteries according to local regulations (e.g. recycling). Do not dispose as

household waste.

3. Never attempt to disassemble the battery.

### **Battery Tips**

- 1. When charging your battery, keep it at a temperature among 5  $^{\circ}$ C 40  $^{\circ}$ C . Temperature out of the limit may cause battery leakage or damage.
- 2. When charging a battery attached to a radio, turn the radio off to ensure a full charge.
- Do not return fully charged batteries to the charger for an "extra boost". This action will significantly reduce battery life.
- 4. Do not return a battery to the charger before the battery power runs low. This action will significantly reduce battery life. Never take the charger as a stand for your radio.
- 5. Never charge a battery that is wet. Please dry it with soft cloth prior to charge.
- 6. The battery will eventually wear out. When the operating time (talk-time and standby time) is noticeably shorter than normal performance, it is time to buy a new battery.

## **To Prolong Battery Life**

- Battery performance will be greatly decreased at a temperature below 0°C. A spare battery is necessary in cold weather. The cold battery unable to work in this situation may work under room temperature, so keep it for later use.
- 2. The dust on the battery contact may cause the battery cannot work or charge. Please use clean dry cloth to wipe it before attaching the battery to the radio.

#### **Battery Storage**

- Fully charge a battery before you store it for a long time, to avoid battery damage due to over-discharge.
- Recharge a battery after several months' storage (Li-lon & Li-polymer batteries: 6
  months), to avoid battery capacity reduction due to over-discharge.
- 3. Store your battery in a cool, dry place under room temperature, to reduce self-discharge.

## **Charging the Battery**

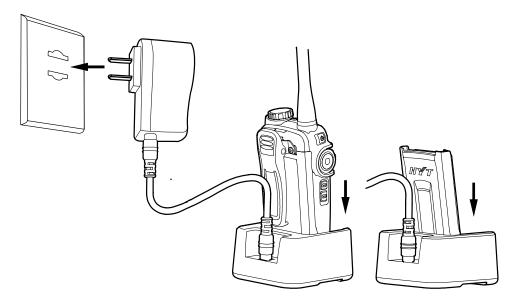
Use only the charger specified by the manufacturer. The charger's LED indicates the charging progress.

Charger LED	Status
Offici got EED	Otatas

Red LED solidly glows.	Battery is charging.
Green LED solidly glows.	Battery is fully charged;
	or
	Charger is ready to charge.

### **Charging Method 1**

Please follow the steps below:



- 1. Plug the AC connector of the adapter into the AC outlet socket.
- Plug the DC connector of the adapter into the DC socket on the back of the charger.Then charger LED glows green.
- 3. Place the radio with the battery attached, or the battery alone, in the charger.
- 4. Make sure the battery is in good contact with the charging terminals. The charging process initiates when the red LED lights.
- 5. The green LED lights when the battery is fully charged (orange LED lights when the battery is almost fully charged). Then remove the radio with the battery attached or the battery alone from the charger.

### **Charging Method 2**

You may connect several single-unit chargers so the combination can be used as a multi-unit charger. To connect single-unit chargers, slide the latch on a charger into the slot on the bottom of another one, as shown in figure 1.

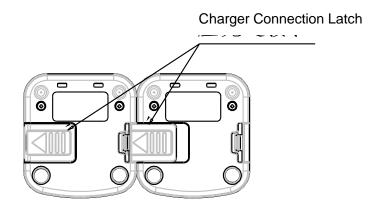


Figure 1 Assembly Diagram of Multi-unit Charger

The assembled multi-unit charger can work with HYT Six-Unit Switching Power, to charge up to six batteries simultaneously, as shown in figure 2. Please refer to Owner's Manual for Six-Unit Switching Power for detailed operation procedures.

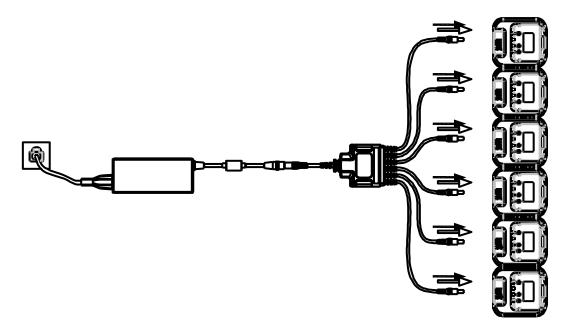


Figure 2 Schematic Diagram of Six-Unit Charger

## **Antenna Information**

 Stubby antenna is ideal for communication within limited range. Thin and long antenna optimizes communication coverage, and its flexible and soft characteristic

- makes it ideal for wearing your radio on the belt.
- Communication range may vary with terrain and your operating conditions. Rainy days or forest locations may narrow your communication range. Please make preparation in advance to avoid potential inconvenience.

## **Assembly and Disassembly**

## **Attaching/Removing the Battery**

### **Attaching the Battery**

- 1. Slightly press the belt clip, and insert the tab at the top of the battery into the slots at the top of the radio's body, as shown in figure 1.
- 2. Slightly press the bottom of the battery until a click is heard. By then, the battery latch locks with the main unit and assembly is finished. See figure 2 below.

Note: If the battery is not well locked, please remove the battery and attach it again.



Figure 1



Figure 2

#### Removing the Battery

- Please turn off the radio first. Then hold the top of radio unit and press the belt clip to make its bottom up. Lift the battery latch, as shown in figure 3.
- 2. When the bottom of battery is lifted, release the battery latch and remove the battery from the radio's body, as shown in figure 4. Note: To avoid serious abrasion between the top tap and the slot, do not tilt the battery to a large angle.

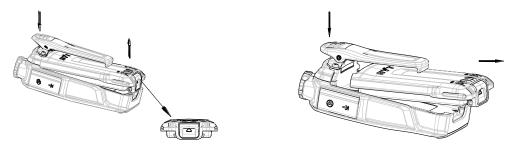


Figure 3 Figure 4

## **Attaching/Removing the Antenna**

### **Attaching the Antenna**

- 1. Align the threaded end of the antenna with the radio's antenna connector.
- 2. Turn the antenna clockwise until it is screwed down, shown as figure 5.

## **Removing the Antenna**

Turn the antenna counter-clockwise until it is loosened and screwed out.



Figure 5

## Attaching/Removing the Belt Clip

### **Attaching the Belt Clip**

Loosen the screws of belt clip from the main unit; fasten the belt clip to the main unit (make sure the screw holes of belt clip are aligned with those of aluminum chassis); and

clockwise screw down the belt clip. See figure 6 below.

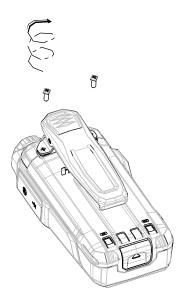


Figure 6

## **Removing the Belt Clip**

Turn the screwdriver counter-clockwise to loosen the screw. Please refer to the operations for attaching the belt clip.

## **Attaching/Removing the Earpiece or Microphone**

## **Attaching the Earpiece/Microphone**

- 1. Open (not remove) the accessory jack cover.
- 2. Plug the audio accessory firmly into the accessory jack, and then secure the screw, shown as figure 7.

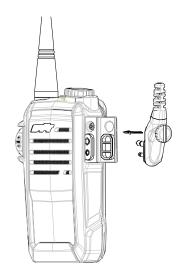


Figure 7

#### Removing the Earpiece/Microphone

Loosen the screw and then remove the audio accessories.

Note: Use of audio accessory may affect the waterproof performance of the radio.

## **Basic Operations**

#### **Turning the Radio On/Off**

To turn on the radio, hold down the **Power On/Off** key for about 1 second, and then the radio sounds power-on alert tone.

To turn off the radio, hold down the **Power On/Off** key for about 2 second, and then the radio sounds power-off alert tone.

#### Adjusting the Volume

You may adjust the volume through any of the following two methods:

- 1. Turn the **Volume Control Knob** upwards to increase the volume, and downwards to decrease the volume. The radio will give you audible indications accordingly.
- 2. Hold down the programmed **Squelch Off** key to listen to background noise, and then turn the **Volume Control Knob** upwards/downwards to increase/decrease the volume. You will hear higher background noise when you increase the volume.

## **Selecting a Channel**

Turn the **Channel Selector Knob** to select a channel; the channel No. pointed by the channel indicator is the currently selected channel.

## **Transmitting**

To transmit, press and hold down the **PTT**, speak into the microphone. Ensure the radio is 2.5 to 5 centimeters away from your lips.

## Receiving

To receive signal, release the PTT.

### Talk Range

Flat ground with no obstructions	Up to 10 kilometers
Residential area (close to buildings)	Up to 5 kilometers
Inside multi-level buildings	Up to 20 floors

Note: The talk ranges herein are site tested in maximum radio power. Radio's status may vary from your specific use environment and radio model.

## **Programmable Auxiliary Functions**

Your dealer may program the **SK1**, **SK2** (long or short press) with one of the following auxiliary functions. See **Advanced Operations** for detailed description.

- None
- Power Adjust
- Compandor
- Monitor
- Monitor Momentary
- Scan
- Scrambler
- Squelch Off
- Squelch Off Momentary

- VOX
- Battery Strength Indicator
- Channel Lock

## **Advanced Operations**

The following functions are programmable by your dealer.

#### CTCSS/CDCSS

Set up talkgroups with unique CDCSS/CTCSS to prevent unwanted conversations on the same frequency.

If CTCSS/CDCSS is set on the current channel, CTCSS/CDCSS match is required for the radio to unmute to an incoming signal. If CTCSS/CCSS is not set, the radio can receive calls from all users operating on the same frequency. Your dealer may set CTCSS/CDCSS for some channels.

This feature does not mean that your conversation will not be heard by others. Radios that set with the same CTCSS/CDCSS, or no CTCSS/CDCSS, can receive from you.

## **Battery Save**

This feature, when no signal is received or no operation is made, can lower battery consumption.

Once the radio detects no activity on the channel and no operation performed (no key press and no knob selection) during radio standby time, it shall automatically enter sleep mode ten seconds later.

Pressing any key or receiving a signal will cause the radio to exit from Battery Save and restore it to normal operation.

#### **Power Adjust**

Press the programmed **Power Adjust** key to switch the transmit power level between high and low.

## **Time-out Timer (TOT)**

Limits the amount of time the radio user can continuously transmit on a channel. If the user holds down the PTT longer than the preprogrammed time period, the radio will automatically stop transmitting and generate a warning tone. To stop the warning tone, release the PTT.

Your dealer may program the alert tone that sounds before the TOT timer nearly expires.

## **Battery Strength Indicator**

TC-518 allows you to simply press the programmed **Battery Strength Indicator** key to illuminate the LED battery gauge, which gives different indications representing battery strength levels. To exit the indications, release the key.

Battery Strength	LED Indication
70% - 100%	Green
50% - 70%	Orange
30% - 50%	Red
10% - 30%	No LED indication is shown when the function key is
	pressed; while the radio is in standby mode, LED flashes red
	and a low-pitched tone sounds at intervals of preset time.
Less than 10%	No LED indication is shown when the function key is
	pressed; the radio can only receive or keep standby, and
	transmit is disallowed. While the radio is in standby mode,
	LED flashes red and a low-pitched tone sounds at intervals
	of preset time. If the PTT is held down, transmit inhibit tone
	would sound.

### **Monitor / Squelch Off**

#### Squelch Off

Causes the radio to forcibly unmute speaker to hear activities on the current channel, whatever the receive condition is. The radio speaker outputs audio when audio signal is present, or background noise will be heard if no audio signal is detected.

Press the function key to enter the **Squelch Off** mode, and press it again to exit.

### Squelch Off Momentary

Causes the radio to forcibly unmute speaker to hear activities on the current channel, whatever the receive condition is. The radio speaker outputs audio when audio signal is present, or background noise will be heard if no audio signal is detected.

Holds down the function key to enter the **Squelch Off Momentary** mode, and release it to exit.

#### Monitor

Carrier condition must be satisfied for the radio to unmute to an incoming call, regardless of CTCSS/CDCSS condition.

Press the function key to enter **Monitor** mode, and press it again to exit.

### Monitor Momentary

Carrier condition must be satisfied for the radio to unmute to an incoming call, regardless of CTCSS/CDCSS condition.

Holds down the function key to enter Monitor Momentary mode, and release it to exit.

#### Scan

Press the programmed **Scan** key to initiate scanning ascending through the channel numbers in scan list. Green LED flashes during the scan process, and solidly glows when activity is detected on a channel and signaling condition is satisfied. Press the key again to exit scanning.

When scanning is active, the radio continuously scans for activity on scan list members. Once activity is detected on a channel, scanning pauses on the active channel for you to receive activity. Your dealer can choose channels that you wish to scan and list them in a scan list.

#### **No Priority Channel**

Assuming a scan list with 6 channels, if all the channels are non-prioritized, the normal scan operation would proceed in the following sequence, as shown in figure 1.

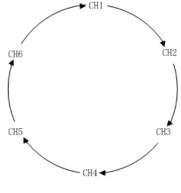


Figure 1

## **Priority Channel Scan**

If you prioritize Channel 2 as Priority 1, the scan operation would proceed in the following sequence, as shown in figure 2.

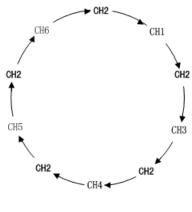


Figure 2

#### Scan On/Off

You can enter scan mode through the following two methods:

## a. Key operation

Press the programmed **Scan** key to enter scan mode, provided that there're no less than 2 members in the scan list.

#### b. Auto

When Auto Scan is enabled for a channel, the radio shall automatically enter scan mode when it is switched to the channel.

You can exit scan mode through any of the following methods:

## a. Key operation

Press the programmed **Scan** key to exit scan mode.

#### b. Auto

The radio automatically exits from scan mode when it is switched to another channel.

c. Turn the radio off.

#### Talk Back

Defines whether the user is able to PTT the radio and talk back on the channel on which the radio currently stops.

When checked, if the radio stops on a channel, the radio user is able to PTT the radio and talk back on that channel. If the radio does not stop on any channel, the user is able to PTT the radio and talk back on the predefined channel.

When unchecked, the radio shall always use the predefined channel to transmit.

#### Priority Channel Scan

Enable you to constantly monitor & keep an update on the activities on the most commonly used channel so that messages will not be missed. Check with your dealer for details.

When scanning remains on a non-priority channel, the radio continues to monitor activities on the priority channel, and jumps to the priority channel if activity is detected.

#### Available Keys in Scan Mode

Valid keys in Scan mode include **PTT** key, volume adjustment keys + / -, and 4 programmable keys of Squelch Off, Squelch Off Momentary, Monitor and Monitor Momentary.

Note: never add a blank channel to a Scan List or designate it as the Tx Channel.

## **Busy Channel Lockout (BCL)**

Avoid interference with the users using the same channel by preventing transmission if another talk group is already on the air. The radio will generate a continuous tone upon **PTT** press if a transmission is not allowed. Release the **PTT** to cancel the tone.

## **Low Battery Alert**

For extra convenience, LED flashes red and a low-pitched tone sounds every ten seconds should the battery level run low, to alert users to recharge the battery.

#### **Voice Operated Transmit (VOX)**

You can transmit hands free with the use of optional accessories. The radio will automatically begin transmitting when you speak, and terminate transmitting when you stop talking.

Your dealer can enable/disable the VOX feature, and set the VOX sensitivity. When the feature is enabled, you can follow these steps to transmit hands free:

- 1. Select the PTT/VOX switch on the earpiece to VOX.
- 2. Plug the earpiece into the accessory jack on your radio.
- 3. Press the programmed **VOX** key to activate the VOX feature.
- 4. Speaker into the earpiece microphone and your voice will be transmitted.

#### **Function Description:**

- Press the programmed VOX key to enable/disable the VOX function. The radio sounds one beep when the feature is enabled, and two continuous beeps when the feature is disabled.
- 2. After the radio is powered off or programmed, the VOX function is automatically disabled.
- 3. The VOX function needs to work with a compatible VOX earpiece.
- 4. Your dealer can set VOX sensitivity level or disable the VOX function via programming software.

#### Note:

- 1. When the PTT/VOX switch on the earpiece is set to PTT, no matter whether VOX is enabled, the user can transmit only when holding down external PTT key.
- When the switch is set to PTT, do not push it from PTT to VOX, or a continuous transmission would be resulted. When continuous transmission occurs, the user can revive the radio to normal operation by pushing the switch from VOX to PTT, or turn the radio off and back on.
- User can select the VOX level according to your specific working environment. If there is very high surrounding noise, a continuous transmission would be resulted when the VOX function is enabled.



Note: To order accessories, please contact your local dealer.

### Compandor

This feature secures high quality communication even in high noise environment. Your dealer may enable the VOX function for certain channels, and users may enable or disable the function through the programmed function key. The radio sounds one beep when the feature is enabled, and two continuous beeps when the feature is disabled.

### Scrambler

This feature can encrypt your voice and make any radio without the function receive no real audio, so that any private communication of users can be highly protected.

Your dealer may enable the Scrambler function for certain channels, and users may enable or disable the function through the programmed function key. The radio sounds one beep when the feature is enabled, and two continuous beeps when the feature is disabled.

#### **Channel Lock**

Prevents accidental change of channel, so that the user won't miss calls on his often used channel. When Channel Lock is enabled, rotating **Channel Selector Knob** won't change the current channel. This function won't be disabled unless you press the **Channel Lock** key again, or power off the radio and back on. The radio sounds one beep when the feature is enabled, and two continuous beeps when the feature is disabled.

# **Troubleshooting**

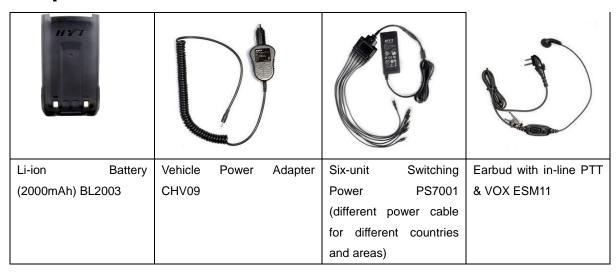
Symptom	Solution
	The battery has run out. Please recharge
	the battery or replace it with a new one.
Cannot power on the radio.	The battery is not properly installed.
	Please remove the battery and attach it
	again.
The operating time is noticeably	The battery has worn out, and it is time to
shorter than normal performance,	buy a new battery.
even though the battery is properly	The battery is not fully charged. Be sure
charged.	to remove the battery from charger after
charged.	the charger LED glows green.
	Make sure you are on the same channel
	with your group members. Check whether
	the Channel Lock feature is enabled. And
Cannot talk to or hear group	if so, rotating the Channel Selector
members.	Knob won't change the current channel.
moniporo.	Make sure radios have the same channel
	and the same CTCSS/CDCSS settings.
	Make sure you are within their
	communication range.
Hear non-group members	Send the radio to your dealer to change
	your CTCSS/CDCSS settings, and so as
	your group members.
	Make sure the volume control knob is
No voice or low voice while	positioned properly.
transmitting	Send the radio to your dealer for
	microphone examination.

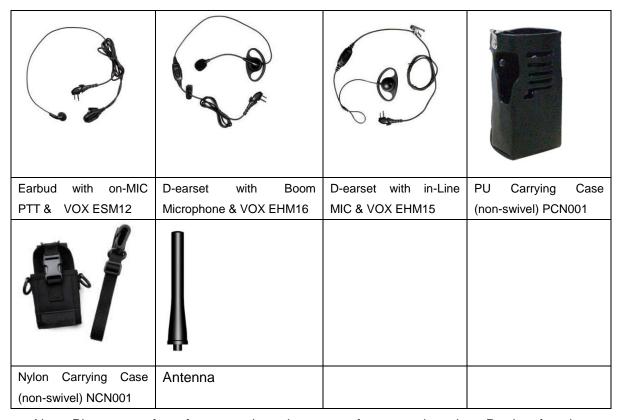
Noise always on	•	Group members are too far away to
		receive their call. Please go within the
		communication range and re-power on
		the radio to try.

## **Care and Cleaning**

- Do not hold the radio by its antenna or external earpiece directly.
- Do not place the radio in a dusty or dirty environment.
- Clean the radio with a lint-free cloth to remove dirt or grease, to avoid poor contact due to excessive dust.
- Clean the radio using a lint-free cloth moistened with clean water and a mild dishwashing liquid.
- Avoid subjecting the radio to corrosives, solvents or spirits.

## **Optional Accessories**





Note: Pictures are for reference only and may vary from actual product. Product function shall remain the same.

HYT endeavors to achieve the accuracy and completeness of this manual, but no warranty of accuracy or reliability is given. All the above specifications and design are subject to change without prior notice due to continuous development.

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