AnyTone

AT-5189

USER'S MANUAL

FC CE RoHS

Thank you for choosing this AnyTone® vehicle transceiver, AnyTone® always provides high quality products, And this transceiver is no exception. As you learn how to use this transceiver, you will find that AnyTone® is pursuing "user friendliness". For example, each time you change the Menu No. in Menu mode, you will see a text message on the display that lets you know what you are configuring.

Though user friendly, this transceiver is technically sophisticated and some features may be new to you. Consider this manual to be a personal tutorial from the designers. Allow the manual to guide you through the learning process now, then act as a reference in the coming years.

Your need
is our service purpose!

Models Apply To This Manual: AT-5189 Mobile radio

AT-5189 Mobile Radio Applicable Software: QPS589

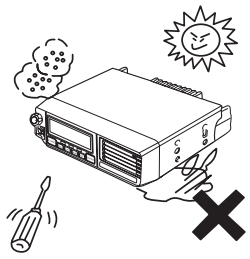
Precautions

Please observe the following precautions to prevent fire, personal injury, and/or transceiver damage:

⚠ Do not attempt to configure your transceiver while driving; it is simply too dangerous.

⚠ This transceiver is designed for a 13.8 V power source. Never use a 24 V battery to power the transceiver.

⚠ Do not place the transceiver in excessively dusty, humid or wet areas, nor on unstable surfaces.



⚠ Please keep it away from interferential devices (such as TV, generator etc.) when interfered by external

⚠ Do not expose the transceiver to long periods of direct sunlight nor place it close to heating appliances.

⚠ If an abnormal odor or smoke is detected coming from the transceiver, turn OFF the power immediately. Contact a Anytone service station or your dealer.

⚠ Do not transmit with high output power for extended periods; the transceiver may overheat.

ATTENTION:
When programming the transceiver, read the factory initial data first, then rewrite the frequency, otherwise errors may occur.

CONTENTS

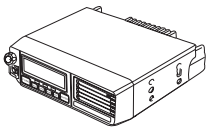
CONTENTS

SUPPLIED ACCESSORIES/OPTIONAL ACCESSORIES 1

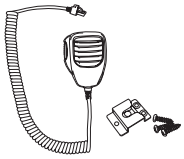
Supplied Accessories

After carefully unpacking the transceiver, identify the items listed in the table below. We recommend you keep the box and packaging for shipping.

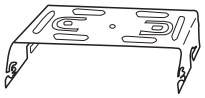
- AT-5189 Vehicle transceiver



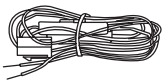
- Microphone (QHM-02)



- Mounting bracket (QMB-02)



- DC power cable with fuse holder (QPL-02)



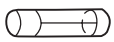
- Hardware kit for bracket

Hexagon SEMS screws (M4x8mm) 4pcs (QSS-02A)

Self -Tapping screws (M5x20mm) 4pcs (QSS-02B)

Flat washers / Spring washers (QSS-02D)

- Spare fuses 2pcs(QF-02)



- Instruction manual

Optional Accessories

- Programming cable (PC51)

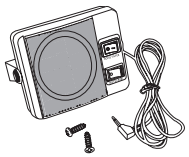
- Cloning cable (CP51)

- Programming software (QPS589)

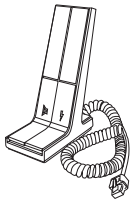
- Regulated power supply (QRP-01)

- DTMF Microphone (QHM-04)

- External Speaker (SP-01)



- Desktop Microphone (QDM-01)



- Car antenna (QCA-01)

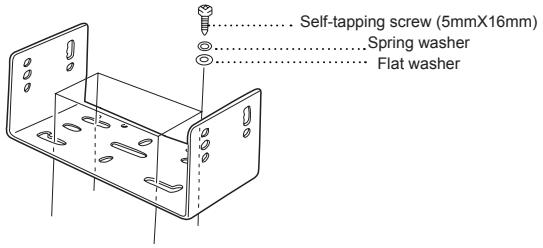
2 PREPARATION

Mobile installation

To install the transceiver, select a safe, convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion. Consider installing the unit at an appropriate position so that knees or legs will not strike it during sudden braking of your vehicle. Try to pick a well ventilated location that is shielded from direct sunlight.

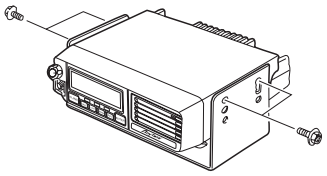
1. Install the mounting bracket in the vehicle using the supplied self-tapping screws (4pcs), flat washers (4pcs), and spring washers (4pcs).

- The bracket must be installed so that the 3 screw hole positions on the side of the mounting bracket are towards the rear of the bracket.

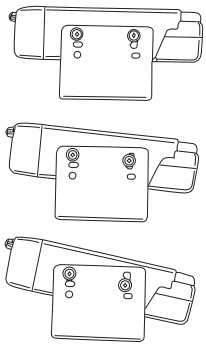


2. Position the transceiver, then insert and tighten the supplied hexagon SEMS screws and flat washers.

- Double check that all hardware is tightened to prevent vehicle vibration from loosening the bracket or transceiver.



- Determine the appropriate angle of the transceiver, using the 3 screw hole positions on the side of the mounting bracket.



DC Power Cable Connection

Note:
Locate the power input connector as close to the transceiver as possible.

♦ Mobile Operation

The vehicle battery must have a nominal rating of 12 V. Never connect the transceiver to a 24 V battery. Be sure to use a 12V vehicle battery that has sufficient current capacity. If the current to the transceiver is insufficient, the display may darken during transmission, or transmit output power may drop excessively.

1. Route the DC power cable supplied with the transceiver directly to the vehicle's battery terminals using the shortest path from the transceiver.

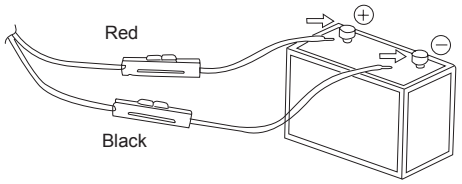
- If using a noise filter, it should be installed with an insulator to prevent it from touching metal on the vehicle.
- We recommend you do not use the cigarette lighter socket as some cigarette lighter sockets introduce an unacceptable voltage drop.
- The entire length of the cable must be dressed so it is isolated from heat, moisture, and the engine secondary (high voltage) ignition system/ cables.

2. After the cable is in place, wrap heat-resistant tape around the fuse holder to protect it from moisture and tie down the full run of cable.

3. To prevent the risk of short circuits, disconnect other wiring from the negative (-) battery terminal before connecting the transceiver.

4. Confirm the correct polarity of the connections, then attach the power cable to the battery terminals; red connects to the positive (+) terminal and black connects to the negative (-) terminal.

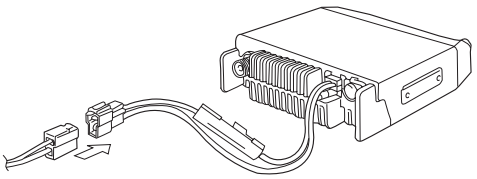
- Use the full length of the cable without cutting off excess even if the cable is longer than required. In particular, never remove the fuse holders from the cable.



5. Reconnect any wiring removed from the negative terminal.

6. Connect the DC power cable to the transceiver's power supply connector.

- Press the connectors firmly together until the locking tab clicks.

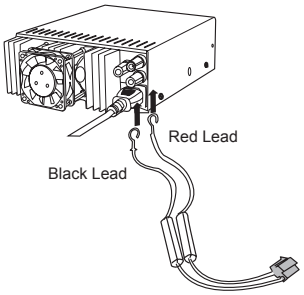


♦ Fixed Station Operation

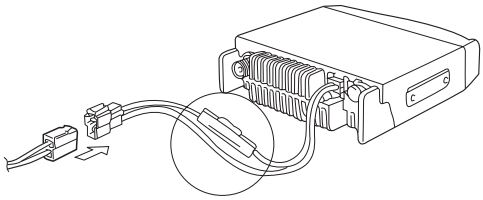
In order to use this transceiver for fixed station 1 operation, you will need a separate 13.8 V DC power supply (not included).
The recommended current capacity of your power supply is 12 A.

1. Connect the DC power cable to the regulated DC power supply and ensure that the polarities are correct (Red: positive, Black: negative).
- Do not directly connect the transceiver to an AC outlet.
- Use the supplied DC power cable to connect the transceiver to a regulated power supply.
- Do not substitute a cable with smaller gauge wires.

Regulat Power supply [QRP-01]



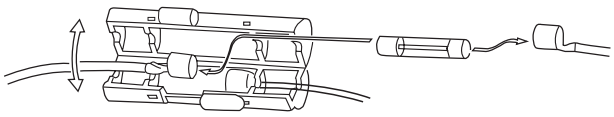
2. Connect the transceiver's DC power connector to the connector on the DC power cable.Press the connectors firmly together until the locking tab clicks.



Note:
- Before connecting the DC power to the transceiver , be sure to switch the transceiver and the DC power supply OFF.
- Do not plug the DC power supply into an AC outlet until you make all connections.

♦ Replacing Fuses

If the fuse blows, determine the cause, then correct the problem. After the problem is resolved, replace the fuse. If newly installed fuses continue to blow, disconnect the power cable and contact your authorized AnyTone® dealer or an authorized AnyTone® service center for assistance.



Fuse Location	Fuse Current Rating
Transceiver	15A
Supplied Accessory DC power cable	20A

Caution:

Only use fuses of the specified type and rating; otherwise the transceiver could be damaged.

Note:

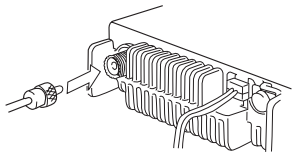
If you use the transceiver for a long period when the vehicle battery is not fully charged, or when the engine is OFF, the battery may become discharged, and will not have sufficient reserves to start the vehicle.
Avoid using the transceiver in these conditions.

Antenna Connection

Before operating, install an efficient, well-tuned antenna. The success of your installation will depend largely on the type of antenna and its correct installation. The transceiver can give excellent results if the antenna system and its installation are given careful attention.
Use a 50Ω impedance antenna and low-loss coaxial feed line that has a characteristic impedance of 50 Ω, to match the transceiver input impedance. Coupling the antenna to the transceiver via feed lines having an impedance other than 50Ω reduces the efficiency of the antenna system and can cause interference to nearby broadcast television receivers, radio receivers, and other electronic equipment.

Note:

- Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting.
- All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock, and transceiver damage.

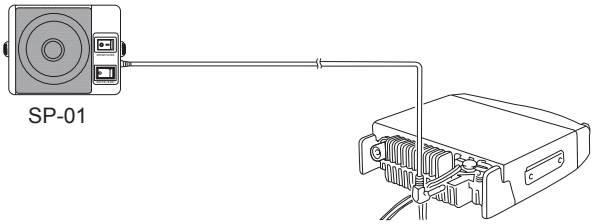


The possible locations of antenna on a car are shown as following.

Accessories Connections

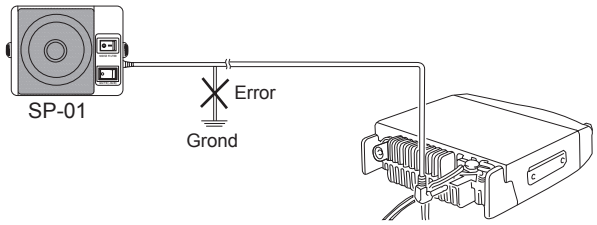
♦ External Speaker

If you plan to use an external speaker, choose a speaker with an impedance of 8 Ω. The external speaker jack accepts a 3.5 mm (1/8") mono (2-conductor) plug.



Note:

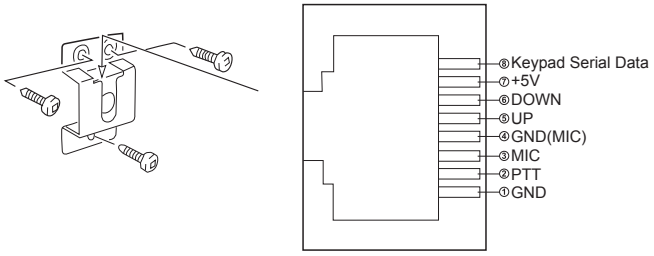
External speaker adopt double port BTL, please care about the connecting way. The speaker can not connect with the ground, otherwise the speaker will be fault. The wrong connecting way as the following picture.



♦ Microphone

For voice communications, connect a microphone equipped with an 8-pin modular plug into the modular socket on the front of the main unit. Press firmly on the plug until the locking tab clicks.

Attach the supplied microphone hanger in an appropriate location using the screws included in the screw set.



♦ PC Connecting

To utilize the optional QPS589 software, you must first connect the transceiver to your PC using an optional programming Cable PC51 (via the microphone jack).

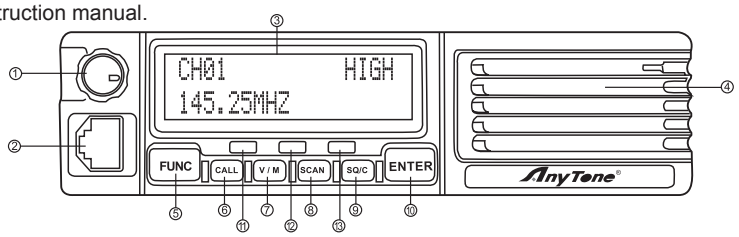
Please use QPS589 software for programming.

Note:

Ask your dealer about purchasing a Programming Cable PC51.

Front Panel

Note: This section describes only the main functions of the front panel controls. Explanations for functions not described here are provided in the appropriate sections of this instruction manual.



❶ Power switch /Volume control/Selector knob
- Turn to adjust the frequency/channel while standby.
- Press once while standby and then turn to adjust the volume level.
- Press and hold for 3 seconds while standby to switch off transceiver.
- Press once to switch on the transceiver while switch off.

❷ PC/Microphone connection
- Standard 8 pins interface for PC programming.
- Connect to microphone for voice communication.

❸ Display LCD
- 16X2 two rows of dot matrix displaying diversified menus and user's information.

❹ Speaker
- For operating prompting and communication.

❺ FUNC Key
- Press it then press relevant key, or press and hold it then within 2 seconds press relevant key to achieve multiple shortcut operations.
- Press and hold more than 2 seconds to enter background operations.

❻ CALL Key
- Press to transmit pre-stored and selected DTMF/2-Tone/5-Tone signaling

❼ V/M Key
- Press to switch between frequency mode and channel mode.

❽ SCAN Key
- Repeatedly Press to select FREQ/CH Scan, CTCSS/DCS Scan, Priority watch, then press ENTER to confirm.

❾ SQ/C Key
- Press and hold to disable squelch while standby, background noise hearable, Release to resume squelch.
- Press while in setup mode, transceiver returns to standby and store current setups.

❿ ENTER key
- Press once to enter channel operations setup.

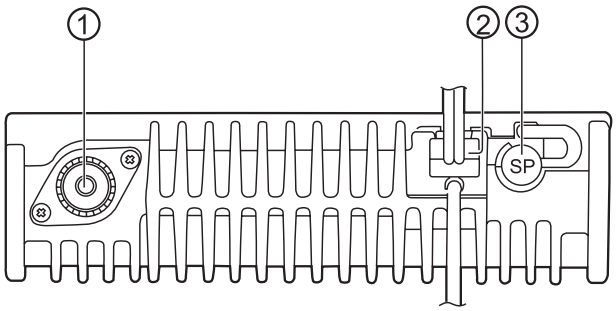
⓫ Busy lamp (Green)
- Lights while current channel receives a matching carrier but un-matching signaling.
- Flashes while a matching carrier and signaling received.

⓬ Transmitting lamp (Red)
- Lights while transmitting.

⓭ Power lamp (Yellow)
- Lights while power on

3 GETTING ACQUAINTED

Rear Panel



❶ Antenna Connector

• Connect an external antenna [page 5] here. When transmitting , the antenna system or load should have an impedance of 50 Ω.

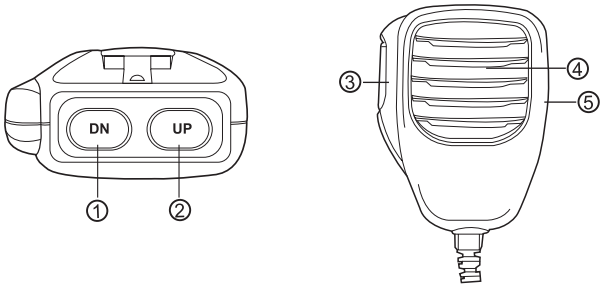
❷ 13.8V DC Cable

• Connect a 13.8V DC power source here. Use the supplied DC power cable QPL-02 [page 1].

❸ SP (Speaker) Jack

• If desired, Connect an optional external speaker (SP-01) for clearer audio. This jack accepts a 3.5mm(1/8") mono (2-conductor) plug [page 6]

Microphone



❶ DOWN Key

• Adjust down in relevant setup.

❷ UP Key

• Adjust up in relevant setup.

❸ PTT (Push-To-Talk) switch

• Press and hold to transmit . Release to receive

❹ MIC

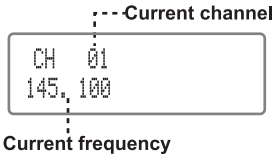
• Speak into microphone while transmitting.

❺ Lock switch

• Switch to LOCK position, all Mic keys will invalid except [**PTT**].

NOTE: This product has 4 working modes and 3 levels of operating menu.

(1) Frequency + channel mode: Under this mode, press [ENTER] key to edit current channel function for temporary use, temporary channel information will be automatically deleted when power off or change channel.
In this mode, all shortcut setup are temporary change and unable be stored, except press [FUNC] key then press [SQ/C] key to set current channel scan skip.

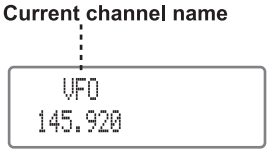


(2) Channel number mode: Under this mode, invalid to press the [ENTER] key , Press [SCAN] key then press [ENTER] key to channel scan. Press [FUNC] key then press and hold [ENTER] key for 2 seconds to lock the keyboard.
All setup in this mode should be operated in PC software , shortcut operations are invalid.

(3) Channel name mode: Under this mode, Press [FUNC] key and then press [CALL] key to edit current channel name. (The setup can be stored).
Press [ENTER] key to edit current channel information for temporary use. Temporary channel information will be deleted automatically when power off or change channel.
In this mode, all shortcut setup are temporary change and can't be stored, except press [FUNC] key then press [SQ/C] key to set current channel scan skip.

(4) Frequency mode(VFO): All shortcut operations and channel operations setup will be set as new value and being stored for long time.

In all modes, background operations can be revised as new value and being stored for long time.



Note:

Frequency + channel mode, Channel number mode, Channel name mode are called channel mode in the following explanation, individual instruction will be labeled for differentiation.

Three levels of operating menu:1.Shortcut operations menu.
2.Channel operations menu.
3.Background operations menu.

5 OPERATING BASICS

Switching The Power On/Off

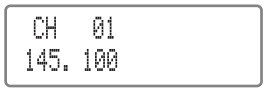
Press the selector knob once to switch on the transceiver while switch off, Press and hold it for 3 seconds to switch off while standby.

Adjusting The Volume

After switch on the transceiver, press the selector knob once, When LCD displays "**SET VOLUME XX**" (XX shows for current volume level), turn the channel selector knob to adjust volume, Clockwise-up, anticlockwise-down.

Switching The Working Mode

Press V/M key or Microphone V/M key while standby to switch between VFO mode and channel mode.



Note: **Unavailable while in channel number mode.**

Selector Knob Adjusting Frequency/Channel

Under frequency mode, you can change the current frequency to the desired one through selector knob; Turn clockwise to increase frequency; turn anticlockwise to decrease. Every gear will increase or decrease one step.

Note:

5k, 6.25k, 10k, 12.5k, 20k, 25k, 30k, 50k total eight step size available for this transceiver.

Under channel mode, Turn selector knob clockwise to forward channel, counterclockwise to backward channel.

In relevant modes ,the Microphone [**UP/DWON**] key have the same function of adjusting frequency or edited channel.(this transceiver shows only edited channels).

Squelch Off / Squelch Off Momentary

SQ/C key can be set as "**Squelch Off / Squelch Off Momentary**" function. This function enable you to monitor weak signal.

1. Squelch off: Press SQ/C key once to disable squelch, background noise appears. Press SQ/C key again to resume squelch.
2. Squelch Off Momentary: Press and hold SQ/C key to disable squelch, background noise appears. Release SQ/C key to resume squelch.

Note:

The above functions should be set in software, SQ/C key become a return key while in function setups.

Receiving

The green LED lamp flashes when the channel being called. then you can hear the calling from the transmitting party.

Note:

If the transceiver has set with higher squelch level, it may fail to hear the calling.

If the green lamp keep lighting, it means the transceiver is receiving a matching carrier and un-matching signaling. The calling is not audible.

(Please refer to signaling combination setup).

Transmitting

According to different setup of SQ/C key, press and hold SQ/C key to monitor for a while to confirm the channel desired is not busy. Then, press and hold [**PTT**] key to speak into microphone.

Please hold the microphone approximately 2.5-5.0cm from your lips, and then speak into the microphone in your normal speaking voice to get best timbre.

Note:

Press and hold [**PTT**] key, LED lights RED indicating it is transmitting, Release to receive.

Transmitting Tone-Pulse

Press and hold [**PTT**], then press Microphone [**DOWN**] key to transmit current selected tone-pulse signal.

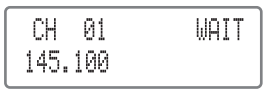
Transmitting Optional Signaling

Press and hold [**PTT**], then press Microphone [**UP**] key to transmit pre-stored and selected DTMF, 2Tone, 5Tone signaling.

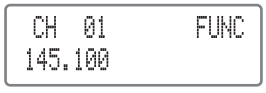
6 SHORTCUT OPERATIONS

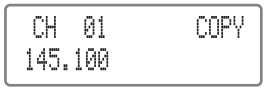
Channel Edit

1. Under frequency mode (VFO), turn channel selector knob to select the desired frequency.
2. Press [ENTER] key to start channel function setup and set desired channel function.(Please refer to channel operations)
3. Press [FUNC] key, LCD displays "**FUNC**", then press [V/M] key, LCD displays "**WAIT**"



4. Turn selector knob to select the desired channel address to store.
5. Press [FUNC] key, LCD displays "**FUNC**", press and hold [V/M] key for 2 seconds, LCD displays "**COPY**" and the transceiver emits "Du Du"sound, when "**COPY**" disappears,the channel storage succeed.



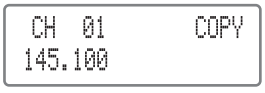


Channel Copy

Copy current channel data to another channel.

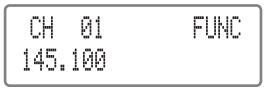
1. Under frequency mode, press [V/M] key to enter channel mode, turn selector knob to select the desired copied channel.
2. Press [FUNC] key, LCD displays "**FUNC**", then press [V/M] key, LCD displays "**WAIT**"

3. Turn selector knob to select the desired address to store the copied channel information.
4. Press [FUNC] key, LCD displays "**FUNC**" , press and hold [V/M] key for 2 seconds, LCD displays"**COPY**" and the transceiver emits"Du Du" sound, when "**COPY**" disappears, the channel copy succeed.

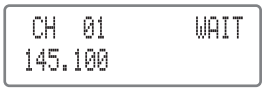


Channel Delete

1. Under frequency mode (VFO) or channel mode, press [FUNC] key, LCD displays "**FUNC**", then press [V/M] key. LCD displays "**WAIT**".



2. Turn selector knob to select channel which you want to delete.
3. Press [FUNC] key, LCD displays "**FUNC**", press and hold [CALL] key for 2 seconds, LCD displays "**CLEAR**" and the transceiver emits "Du Du" sound, when "**CLEAR**" disappears, the channel has been deleted. The LCD still displays "**WAIT**", and no frequency displays in current channel.(Repeat step2, 3 to delete channels continuously.)



4. Press [SQ/C] key to exit.

Channel Name Edit

When transceiver is in channel name display mode, after pressing [FUNC] key, LCD displays "**FUNC**", then press [CALL] key to get into the channel name program mode of current channel. Turn channel selector to select the desired character or figure, press [CALL] key and [V/M] key to move the cursor, press [SQ/C] key to confirm and exit when finish program.

Short Call

While standby, press [CALL] key to transmit optional signaling(DTMF, 2-Tone, 5-Tone) in current channel.

Frequency/Channel Scan

In relevant modes, press [SCAN] key repeatedly until LCD displays "**FREQ/CH SCAN?**", then press [ENTER] key to enable frequency/channel scan.

♦ Frequency Scan

In frequency mode, this function is designed to monitor signal of every communicative frequency point of transceiver "STEP" you have set. Press Microphone [**UP/DOWN**] or selector knob to change scan direction, press any key (other than [FUNC] key) to exit.

Note:

When the transceiver is programmed with PA frequency and PB frequency, in frequency mode (VFO), frequency subsection scan is valid. For details, please refer to help options in programming software.

♦ Channel Scan

In channel mode, this function is designed to monitor signal in every channel. Press Microphone [**UP/DOWN**] or the selector knob to change scan direction, press any key (other than [FUNC] key) to exit.

CTCSS/DCS Scan

Press [FUNC] key repeatedly until LCD displays "**CTCSS/DCS SCAN?**", then press [ENTER] key to start scan. When finding a matching signaling, the scan will pause for 15 seconds then scan again. Press any key (other than [FUNC] key) to exit.

Note:

Invalid when no signaling existed in current channel.

When the current channel signaling is set to CTCSS, the transceiver will scan CTCSS.

When the current channel signaling is set to DCS, the transceiver will scan DCS.

Press Microphone [**UP/DOWN**] or turn selector knob to change scan direction.

6 SHORTCUT OPERATIONS

Priority Monitor

Enable this function in frequency mode(VFO), the transceiver will detect the signaling of priority channel every 5 seconds one time.

1. While in frequency mode (VFO), press [V/M] key to switch to channel mode, then turn selector knob to select desired monitor channel.
2. Press [SCAN] key repeatedly, when "**PRIORITY WATCH**" appears, then press [ENTER] key to enter priority monitor

Note:

The LCD displays "**PRI**" While in priority monitor, and the frequency will shift in every 5 seconds.

When the priority channel receives a matching carrier and signaling, it will pause for 10 seconds. If press PTT during this time, the dual watch will stop and the transceiver start communication by current receiving frequency.

High/Mid/Low Power switch (Shortcut)

Press and hold [FUNC] key while standby, then press [CALL] key within 2 seconds to switch between high/middle/low power. Repeat this operation, the LCD displays:

1. "**TX POWER HIGH**" indicates you have choose high TX power.

2. "**TX POWER MIDDLE**" indicates you have choose middle TX power.
3. "**TX POWER LOW** " indicates you have choose low TX power.

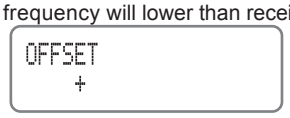
Note:

In frequency mode (VFO)/channel mode, you can repeatedly press Microphone [MIC] key to switch between high /middle/low TX power. This operation is invalid in channel number mode.

Offset Direction (Shortcut)

Press and hold [FUNC] key while standby, then press [V/M] key within 2 seconds to switch offset direction. Repeat this operation, the LCD displays:

1. "**OFFSET+**" indicates transmitting frequency is higher than receiving frequency, if reverse function is enabled, transmitting frequency will lower than receiving frequency.



2. "**OFFSET-**" indicates transmitting frequency is lower than receiving frequency, if reverse function is enabled, transmitting frequency will higher than receiving frequency.

3. "**OFFSET OFF**" indicates shut offset.

Wide/Narrow Band Setup (Shortcut)

Press and hold [FUNC] key while standby, then press [SCAN] key within 2 seconds to switch bandwidth. Repeat this operation, the LCD displays.

"**W/N 25K**" indicates wide bandwidth;

"**W/N 20K**" indicates middle bandwidth;

"**W/N 12.5K**" indicates narrow bandwidth;

Note: This operation is invalid in channel number mode.

Compander Function (Shortcut)

Press and hold [FUNC] key while standby , then press [SQ/C] key can enable or disable compander function.

LCD displays "**COMPANDER ON**" indicates enable Compander function.

LCD displays "**COMPANDER OFF**" indicates disable Compander function.

Reverse Function (Shortcut)

Press and hold [FUNC] key while standby,then press [ENTER] key to enable or disable reverse function.

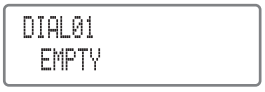
LCD displays "**REVERSE ON**" indicates enable reverse function.

LCD displays "**REVERSE OFF**" indicates disable reverse function.

Pre-stored DTMF Code Searching and Transmitting

For users convenience, 16 groups of DTMF code can be pre-stored (Pre-stored DTMF code should be edit by PC program)

1. Press [FUNC] key while standby , then press [SCAN] key to check pre-stored DTMF code, if no signaling in current group, the transceiver will display "**EMPTY**".



2. Turn selector knob or Microphone [**UP/DOWN**] key to check each group of DTMF code.
3. Then press [**PTT**] key or [CALL] key to transmit current group of DTMF data.

Note: This operation is invalid in channel number mode.

Scan Channel Skip

Press FUNC key while in frequency + channel number mode or in channel name+ channel number mode, when"**FUNC**"appears, then press SQ/C key , repeat above operation to setup current channel be scanned or not.

1. When "**SKIP ON**" appears, indicate the current channel scan be skipped.

2. When "**SKIP OFF**" appears, indicate the current channel be scanned.

Note: This operation is invalid in channel number mode or frequency mode.

Under channel mode, channel operations can edit current channel function for temporary use, when power off or channel has been changed, the relevant setup will be deleted automatically.

While standby the operations as following.

1. Press [ENTER] key to enter the channel function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key to select the menus to be set.
3. Turn selector knob to choose the selected content.
4. Press [SQ/C] key or [ENTER] key to confirm and exit the setup.

Note:

This operation is invalid in channel number mode. under frequency mode (VFO), channel operations will be stored for longterm.

CTCSS/DCS Encode Setup

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**CTCSS/DCS ENCODE**"

3. Press [CALL] key to select CTCSS,DCS or OFF, when DCS selected, press [V/M] key to select positive or inverse code.
4. Turn selector knob to select desired CTCSS/DCS code.
5. CTCSS code: 62.5Hz-254.1Hz, 51 groups utmost.

6. DCS code: 000N-777I, total 1024 groups, N stands for positive code, I stands for inverse code. Default :023N

CTCSS/DCS Decode Setup

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**CTCSS/DCS DECODE**".

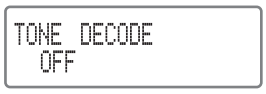
3. Press [CALL] key to select CTCSS,DCS or OFF, when DCS selected, press [V/M] key to select positive or inverse code.
4. Turn selector knob to select desired CTCSS/DCS code.
5. CTCSS code: 62.5Hz-254.1Hz, 51 groups utmost.

6. DCS code: 000N-777I, total 1024 groups, N stands for positive code, I stands for inverse code. Default: 023N

Add Or Cancel DTMF/2-Tone/5-Tone Signaling

DTMF/2-Tone/5-Tone signaling are similar to CTCSS/DCS, while DTMF and 5-Tone have other special functions including ANI, PTT ID, Call All, Group Call, Signal Call, Alarm, Remote Stun, Remote Kill, Wake Up, Tail Eliminating. for more information and setup, please refer to the help option in the programming software.

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**TONE DECODE**".



3. Turn selector knob to select desired setup.
4. When the LCD displays "**DTMF**", the current channel has DTMF signaling squelch when receive. Hold [**PTT**] key then press UP key to transmit pre-stored and selected DTMF signaling.

5. When the LCD displays "**2TONE**", the current channel has 2-Tone signaling squelch when receive. Hold [**PTT**] key then press [UP] key to transmit pre-stored and selected 2-Tone signaling.

6. When the LCD displays "**5TONE**", the current channel has 5-Tone signaling squelch when receive. Hold [**PTT**] key then press [**UP**] key to transmit pre-stored and selected 5-Tone signaling.

7. When the LCD displays "**OFF**", DTMF, 2-Tone, 5-Tone signaling are cancelled.

Choose To Transmit 2-Tone

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**2TONE CALLXX**", (XX stands for current group name).

3. Turn selector knob to select the desired 2-Tone group, press [**PTT**] key will transmit current selected group.
4. In total 32 groups, 00-31 utmost, Default : 00

Note:

2-Tone setup should be programmed by software, the transceiver can only display the programmed group. If you edit each group with a name , the name and number will both displayed when you check 2-Tone.

Choose To Transmit 5-Tone

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**5TONE CALLXX**", (XX stands for current group name.)

3. Turn selector knob to select a 5-Tone group , then press [**PTT**] key to transmit current selected group.
4. In total 100 groups, 00-99 utmost, default : 00

Note:

5-Tone setup should be programmed by software, the transceiver can only display the programmed group. If you edit each group with a name , the name and number will both displayed when you check 5-Tone.

Signaling Combination Setup

This function is used to setup squelch mode.

1. Press [ENTER] key to enter function menu.

2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**SIGNAL**".

3. Turn selector knob to select desired signaling combination. When LCD Displays:

"**SQUELCH**" indicates you can hear the calling as long as the transceiver receives matching carrier.

"**CTCSS/DCS**" indicates you can hear the calling as long as the transceiver receives a matching carrier and a matching CTCSS or DCS signaling.

"**TONE**" indicates you can hear the calling as long as the transceiver receives a matching carrier and a matching DTMF, 2-Tone or 5-Tone signaling.

"**CTDCS&TONE**", you can here the calling as long as the transceiver receives a matching carrier and a matching CTCSS or DCS signaling and a matching DTMF, 2-Tone or 5-Tone signaling.

"**CTDCS/TONE**", you can here the calling as long as the transceiver receives a matching carrier and any one of a matching CTCSS,DCS, DTMF,2-Tone,5-Tone signaling.

Offset Direction Setup

This function should coordinate with the offset frequency setup, which enable you to communication with another transceiver through a repeater.

1. Press [ENTER] key to enter function menu.

2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**OFFSET**"

3. Turn selector knob to select the desired offset direction.

"**OFFSET-**", indicates transmitting frequency is lower than receiving frequency. When Reverse Function is enabled, Transmitting frequency is higher than receiving frequency.

"**OFFSET+**", indicates transmitting frequency is higher than receiving frequency. if Reverse Function is enabled, Transmitting frequency will lower than receiving frequency.
"**OFFSET OFF**" shuts offset direction.

Note: Invalid when Talk Around function is enabled.

Offset Frequency Setup

This function should coordinate with offset direction setup, which enable you to communication with another transceiver through a repeater.

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**OFFSET FREQ**".
3. Turn selector knob to select the desired offset frequency.
4. Offset frequency range: 00-69.995 MHz. Default: 0.6Mhz.

Frequency Step Size Setup

Available only in frequency mode (VFO). Adjusting Frequency by selector or frequency scan is restricted by frequency step size.

1. Press [ENTER] key to enter function menu
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**STEP**"

3. Turn selector knob to select the desired step size.
Available step size: 5K,6.25K,10K,12.5K,20K,25K,30K,50K.
Default: 20K

Note: This function is unavailable in channel mode.

Wide/Narrow Band Setup

Select suitable bandwidth in accordance with different local conditions.

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**W/N**".
3. Turn selector knob to select the desired bandwidth.
Option: 25K (Wide band), 20K (Middle band), 12.5K(Narrow band).
4. Default: 25K.

Frequency Reverse Setup

The TX/RX frequency will be reversed when this function is enabled: TX frequency changes to RX frequency, RX frequency changes to TX frequency. The signaling will also be reversed if CTCSS/DCS signaling existed.

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**REVERSE**".
3. Turn selector knob to select the desired setup.
ON: enable frequency reverse **OFF**: disable frequency reverse

Note: Invalid when talk around function is enabled.

Talk Around

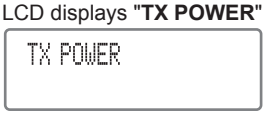
When this function is enabled, The transceiver will secede from repeater station communication mode and transmitting by receiving frequency and its CTCSS/DCS signaling.

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**TALK AROUND**"
3. Turn selector knob to select the desired setup.
   ON: enable talk around. **OFF**: disable talk around.

4. Default: OFF

High/Mid/Low Power Switch

1. Press [ENTER] key to enter function menu
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**TX POWER**"



3. Turn selector knob to select the desired setup.
   HIGH: indicates high TX power

MIDDLE: indicates middle TX power

LOW: indicates low TX power

4. Default: High

TX Off Setup

[**PTT**] is invalid when this function is enabled, and the current channel only works in RX mode.

1. Press [ENTER] key to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**TX INHIBIT**".
3. Turn selector knob to select the desired setup:
   ON: enable TX OFF function, [**PTT**] is invalid.

OFF: disable TX OFF function, transmitting enabled.

4. Default: OFF

Compander (Reduce noise, Improve communication Quality)

Enable this function to reduce noise and improve communication quality, especially in long range communication.

1. Press ENTER key to enter function menu.
2. Repeatedly press SCAN key or Microphone [**UP/DOWN**] key until LCD displays "**COMPANDER**".
3. Turn selector knob to select the desired setup:
   ON: enable compander.

   OFF: disable compander.

4. Default: OFF.

Scramble Setup(Encryption) Optional

This special voice processing can offer confidential communication, another transceiver in same frequency can receive only disorder noises.

1. Press ENTER key to enter function menu.
2. Repeatedly press SCAN key or Microphone [**UP/DOWN**] key until LCD displays "**SCRAMBLE**".
3. Turn selector knob to select the desired setup:
   ON: enable scramble.

   OFF: disable scramble

4. Default:OFF

Background operations can be changed in any modes, and can be stored as the latest value for a long time, the operations as following:

1. Press and hold [FUNC] key for over 2 seconds to enter background operations menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key to select desired function option.
3. Turn selector knob to select desired setup.
4. Press [SQ/C] key to confirm selection and to exit.

Voice Prompt

The prompting tone provides confirmation of entry, error status or malfunctions of the transceiver. You can enabled or disable this function.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**BEEP**".
3. Turn selector knob to select the desired setup.
   ON: enable voice Prompt **OFF**: disable voice Prompt

4. Default: ON

Note:

We recommend you leave this function on in order to detect erroneous operations and malfunctions.

TOT (Time-out timer)

This function is set to prevent the transceiver from longtime transmitting. If the continuous transmitting exceeds the programmed time, it will be pause and an alert tone will sound.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**TIME OUT TIMER**"
3. Turn selector knob to select desired setup:
   ON: enable Time-out timer **OFF**: disable Time-out timer

4. Default: OFF

APO (Auto power off)

Enable this function, the transceiver will automatically switches off after working for a scheduled period of time.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**AUTO POWER OFF**"

3. Turn selector knob to select desired setup:
   30MIN: Automatic power off after 30 minutes

   1HOUR:Automatic power off after 1 hour

   2 HOUR: Automatic power off after 2 hours

4. Default: OFF

Busy Channel Lockout

When activated BCL,you can not transmit in busy channel, BCL prevents you from interfering with other parties who may be using the same channel that you selected .

Pressing the [**PTT**] while the channel is in use will cause your transceiver to emit an alert tone and transmission will be inhibited and return to receive mode.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**LOCK OUT**"
3. Turn selector knob to select desired setup:

REPEATERT LOCK: Transmitting is inhibited when current channel receives a matching carrier with different CTCSS / DCS.

BUSY: Carrier busy lock, transmitting is inhibited when current channel receives a matching carrier.

OFF: BCL disables.

4. Default: OFF

DTMF Transmitting Time Setup

1. Press and hold [FUNC] key for over 2 seconds to enter function menu. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**DTMF SPEED**".
3. Turn selector knob to select desired setup.

50MS:Every audio signal of DTMF transmits 50MS and pauses 50MS.

100MS:Every audio signal of DTMF transmits 100MS and pauses 100MS.

200MS:Every audio signal of DTMF transmits 200MS and pauses 200MS.

300MS:Every audio signal of DTMF transmits 300MS and pauses 300MS.

500MS:Every audio signal of DTMF transmits 500MS andpauses 500MS

4. Default: 100MS

Squelch Setup

The purpose of Squelch is to mute the speaker when no signals are present.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.

1. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**SQUELCH LEVEL**".
2. Turn selector knob to select the desired level
3. 00-20: Total 21 levels available; 00: Minimum ~ 20:Maximum
4. Default: 04

Remind : Press and hold [SQ/C] key, then turn selector knob also can adjust the squelch level.

Note:
If the squelch level is too high, the transceiver will fail to get weak signal; if the squelch level is too low, the transceiver will be easily disturbed.

Scan Dwell Time Setup

Four types of scan dwell time available.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**SCAN DWELL TIME**".
3. Turn selector knob to select desired setup:

5SEC: scan pause for 5 seconds when search a matching signal, then continue to scan.

10SEC: scan pause for 10 seconds when search a matching signal, then continue to scan.

15SEC: scan pause for 15 seconds when search a matching signal, then continue to scan.

Pause: Scan pause when search a matching signal , Continue to scan after signal disappears 2 seconds.

5. Default: 15SEC

Note: This setup can be also applied in CTCSS/DCS scan.

LCD Backlight

1. Press and hold [FUNC] key for over 2 seconds to enter function menu. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**LCD BACKLIGHT**".
2. Turn selector knob to select desired setup.

LOW: Low brightness

HIGH: High brightness

4. Default: HIGH

Current Voltage Display

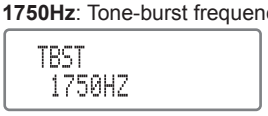
1. Press and hold [FUNC] key for over 2 seconds to enter function menu. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**VOLTAGE**".
2. The LCD will show current voltage.

Choose Tone-Pulse Frequency

This function is used to start the repeater; it needs a certain intensity of Tone-pulse single to start the sleep repeater. Usually when repeater has started, repeater system does not require this Tone-pulse.

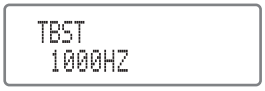
1. Press and hold [FUNC] key for over 2 seconds to enter function menu. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**TBST**".
2. Turn selector knob to select desired setup:

1750Hz: Tone-burst frequency is 1750Hz;



2100Hz: Tone-burst frequency is 2100Hz;

1000Hz: Tone-burst frequency is 1000Hz;



1450Hz: Tone-burst frequency is 1450Hz:

4. Default: 1750Hz

DTMF ANI On/Off

ANI function is available through DTMF signaling or 5-Tone signaling. Enable this function to realize DTMF ANI function, the transceiver will display the caller's ID number when it receives a DTMF ANI calling.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**DTMF ANI**".
3. Turn selector knob to select desired setup:

OFF: DTMF ANI function off

ON: DTMF ANI function on

4. Default: OFF

Use software to set up 5-Tone ANI function.

Note: Use software to set up DTMF ANI function.

Display Mode Setup

There are 3 display modes for selection: channel frequency + channel number, channel number, channel name + channel number.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**DISPLAY TYPE** "
3. Turn selector knob to select desired setup.

   FREQ: channel frequency + channel number mode.

   CHANNEL: channel number mode.

   NAME: channel name + channel number mode, if current channel no name, it will display channel frequency + channel number.

4. Default: FREQ

Note: when display mode in programming software is set to channel number mode and locked, this function will auto-hide. (Sould be setup in the PC software)

Resume Factory Default

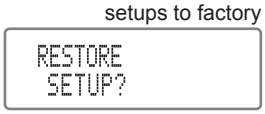
When the transceiver is malfunctioning for wrong operation or setup, this function can reset all channels and setups to factory default.

1. Press and hold [FUNC] key for over 2 seconds to enter function menu.
2. Repeatedly press [SCAN] key or Microphone [**UP/DOWN**] key until LCD displays "**RESTORE**"
3. Turn selector knob to select desired setup.

   FACTORY?: Resume all channels and setups to factory default.

   SETUP?: Without change the channel, resume all background setups to factory default

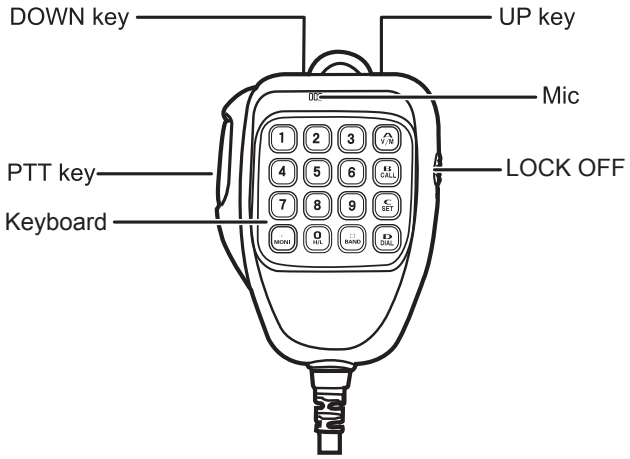
   

   OFF: No Restore.

4. Press [ENTER] key to confirm the selection.

9 MICROPHONE OPERATIONS



You can operate the transceiver by keyboard or input desired frequency/channel through the QHM-04 Microphone keyboard.

Key Lockout

To avoid misplay, switch it to LOCK position, the microphone lamp off and all keys invalid except [**PTT**].

Transmitting DTMF Tone By Microphone

Press and hold the [**PTT**] key, transmitting the desired DTMF signaling by the digital key directly.

Function Setup by Microphone Keyboard

♦ Squelch off

Press MONI key while standby, the squelch is disabled when the green LCD flashes, press MONI key again to enable squelch.

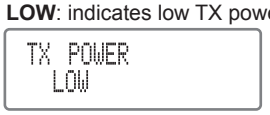
♦ High/Mid/Low Power Switch

While standby repeatedly press H/L key to select desired setup. The LCD displays:

HIGH: indicates high TX power

MIDDLE: indicates middle TX power

LOW: indicates low TX power

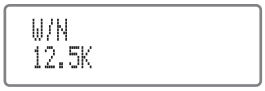


♦ Wide/Narrow Band Setup

While standby, repeatedly press BAND to select a bandwidth. The LCD displays:

"**W/N 25K**" is wide bandwidth

"**W/N 20K**" is middle bandwidth



"**W/N 12.5K**" is narrow bandwidth

♦ **Display Mode Setup**
While standby, press V/M key to switch between channel mode and frequency mode.

♦ **Short call**
While standby, press CALL key to transmit selected signaling (DTMF,2-Tone, 5-Tone)

♦ **Channel operations**
While standby, press SET key to enter channel operations function, repeatedly press SCAN key or Microphone [**UP/DOWN**] key to select the function options, Turn selector knob to select the desired setup. Then press SQ/C key to confirm selection and exit.

Note: Invalid in channel number mode.

♦ **Transmitting Pre-stored DTMF Encode**
While standby, press DIAL key to check pre-stored DTMF codes, then press [**UP/DOWN**] key to select a group. Now you can press [**PTT**] key to transmit current DTMF signaling.

♦ **Edit And Pre-store DTMF Encode**
While standby, press DIAL key to check pre-stored DTMF codes, then press [**UP/DOWN**] key to select a group for edited and pre-stored. Press SET key to enter DTMF editing mode.
You can input the desired DTMF data though the number keys, then press [**PTT**] key to transmit and store the DTMF data.

♦ **Input Frequency Via Microphone Keyboard**
You can input the desired frequency directly via the number keys While in frequency mode(VFO), e.g, when 150Mhz desired, just press 1 5 0 0 0 0 six numbers to switch frequency to 150MHz.

♦ **Input channel via Microphone keyboard**
While in frequency+channel number mode or channel name +channel number mode, input three numbers (001 -250) to switch to a desired channel. If an unedited channel being selected, the transceiver will emit a beep sound for error, the transceiver will resume to current channel. e.g, input 0 0 5 is for channel number 5, 0 5 5 for channel number 55, 2 2 5 for channel number 225.

10 AUXILIARY FUNCTIONS

Initial Setup

Synchronously press and hold FUNC key and SQ/C key to power on the transceiver, then you can start initialization.
(Note: All programming data will be automatically delete after this operation)

Cable Cloning

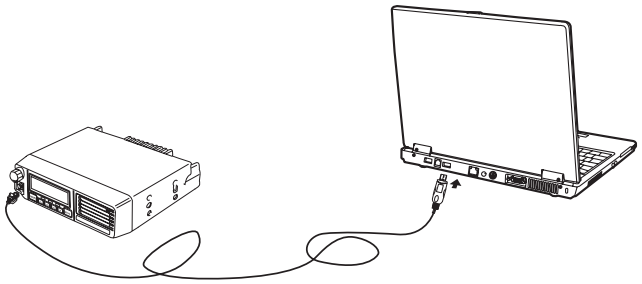
With this function, you can copy the programming data of the transceiver to another one; it can copy parameters and memory programming data to another transceiver.

1. Synchronously press and hold the FUNC key and SCAN key to power on main unit and enter clone mode. the LCD displays "**CLONE**".
2. Use CP51 wire cloning cable (optional accessory) to connect main transceiver with sub-transceiver through PC or MIC interface.
3. Press main unit ENTER key to begin clone, both units will display "**CLONE XX**". XX stands for the size of current cloned data.
4. when the clone finish, the sub-transceiver will restart automatically and the main unit display "**CLONE**", replace the sub-unit with another unit, and repeat step 2 and step3 to start new clone.(Note: while main unit in clone mode, repeat step 2 to step 4 to apply cloning for more units)
5. Restart the main unit power to exit the clone mode.

Programming Software Installing and Starting (in windows XP system)

1. Double click QPS589 setup.exe, then follow the installing instruction.
2. Click start menu in computer ,under "**ALL PROGRAMS**" menu, choose and click "USB To Com port" in QPS589 program, install "USB To Com port" drives by indication.
3. Connect the optional PC51 USB Programming cable to USB port in PC with transceiver.
4. Double click QSP589 shortcut or click QPS589 in procedure index of start menu, choose serial com port as indicated then click OK to start programming software.(You shall install software before connecting the USB cable line.)

Note:
this software has product identify system. So when firstly installing the software, you have to connect the products, otherwise, you can not start the software.



General information

This product has been factory aligned and tested to specification before shipment. In normal circumstances, the transceiver will operate in accordance with these instructions. All adjustable trimmers, coils, and resistors in the transceiver were preset at the factory. They should only be readjusted by a qualified technician who is familiar with this transceiver and has the necessary test equipment. Attempting service or alignment without factory authorization can void the transceiver warranty.

When operated properly, the transceiver will provide years of service and enjoyment without requiring further realignment.The information in this section gives some general service procedures requiring little or no test equipment.

Service

If it is ever necessary to return this equipment to your dealer or service center for repair, pack it in its original box and packing material. Include a full description of the problems experienced.

Include your telephone number, fax number, and e-mail address (if available) along with your name and address in case the service technician needs to call you for further information While investigating your problem. Do not return accessory items unless you feel they are directly related to the service problem.

You may return this product for service to the authorized AnyTone® dealer from whom you purchased it, or any authorized AnyTone® service center. A copy of the service report will be returned with the transceiver. Please do not send subassemblies or printed circuit boards; send the complete transceiver. Tag all returned items with your name and call sign for identification.

Please mention the model and serial number of the transceiver in any communication regarding the problem.

Service note

If you desire to correspond on a technical or operational problem, please make your note short, complete, and to the point. Help us help you by providing the following:

- Model and serial number of equipment.
- Question or problem you are having.
- Other equipment in your station pertaining to the problem.
- Meter readings.
- Other related information (menu setup, mode, frequency, key sequence to induce malfunction, etc.)

Warning:

Do not pack the equipment in crushed newspapers for shipment. Extensive damage may result during rough handling or shipping.

Cleaning

The keys, controls, and case of the transceiver are likely to become soiled after extended use. Remove the controls from the transceiver and clean them with a neutral detergent and warm water. Use a neutral detergent (no strong chemicals) and a damp cloth to clean the case.

13 TROUBLE SHOOTING

The problems described in the following tables are commonly encountered operational malfunctions. These types of difficulties are usually caused by improper hook-up, accidental incorrect control setup, or operator error due to incomplete programming. These problems are usually not caused by circuit failure. Please review these tables and the appropriate section(s) of this instruction manual before assuming your transceiver is defective.

Problem	Probable Cause	Corrective Action
The transceiver will not power up after connecting a 13.8 V DC power supply and pressing the power switch. Nothing appears on the display.	1.The power cable was connected backwards. 2.One or more of the power cable fuses are open.	1.Connect the supplied DC power cable correctly: Red (+); Black (-). 2.Look for the cause of the blown fuse(s). After inspecting and correcting any problems, install a new fuse(s) with the same ratings.
The display is too dim,even though you selected a high brightness level.	The supply voltage is too low.	The supply voltage requirement is 13.8 V DC 15% (11.7 V to 15.8 V DC). If the input voltage is outside this range, adjust your regulated power supply and/or check all power cable connections.
You cannot transmit even though you press Microhpone [PTT].	The microphone plug was not inserted completely into the front panel connector.	Switch OFF the power, then insert themicrophone plug until the locking tab clicks in place.
Scan not available	Channel not included in scan when PC programming	
Communicational range drop down	1. Antenna connection problem 2. The transceiver may work in low power mode	1.Check antenna connector 2.Change output power to a high level.

Specifications

General	
Frequency Range	HF: 33-49MHz 66-88MHz VHF: 136-174MHz 245-246MHz UHF: 400~490MHz
Number of Channels	250 channels
Channel Spacing	25KHz (Wide Band) 20KHz (Middle Band) 12.5K (Narrow band)
Phase-locked Step	5KHz、 6.25KHz
Operating Voltage	13.8V DC ±15%
Squelch	Carrier/CTCSS/DCS/5-Tone/2-Tone/DTMF
Frequency Stability	±2.5ppm
Operating Temperature	-20~+60℃ (-4 F~+140F)
Dimensions(WxHxD)	160x155x40mm
Weight	1KG

Specifications are subject to change without notice due to advancements in technology.

Receiver (ETSI EN 300 086 standard testing)		
	Wide band	Narrow band
Sensitivity (12dB Sinad)	≤0.2μV	≤0.25μV
Adjacent Channel Selectivity	≥70dB	≥60dB
Intermodulation	≥65dB	≥60dB
Spurious Rejection	≥70dB	≥70dB
Audio Response	+1~-3dB(0.3~3KHz)	+1~-3dB(0.3~2.55KHz)
Hum & Noise	≥45dB	≥40dB
Audio distortion	≤5%	
Audio power output	＞2W@10%	

Transmitter (ETSI EN 300 086 standard testing)		
	Wide band	Narrow band
Power Output	60W /25W/10W(VHF)	45W /25W/10W(UHF)
Modulation	16KΦF3E	11KΦF3E
Adjacent Channel Power	≥70dB	≥60dB
Hum & Noise	≥40dB	≥36dB
Spurious Emission	≥60dB	≥60dB
Audio Response	+1~-3dB(0.3~3KHz)	+1~-3dB(0.3~2.55KHz)
Audio Distortion	≤5%	

Qixiang Electron Science & Technology Co., Ltd.
www.qxdz.cn