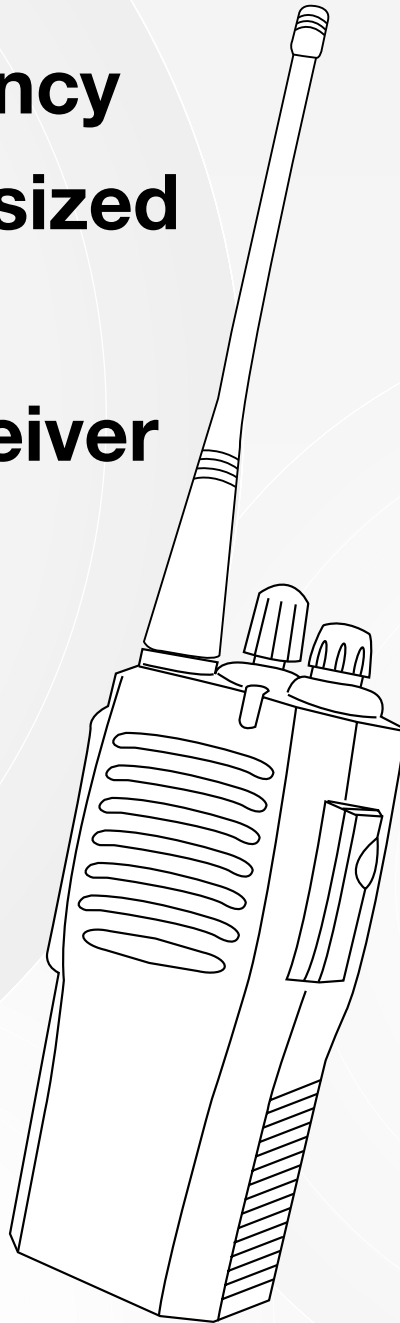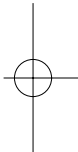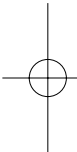# Frequency Synthesized Handy Transceiver

Introduction

Thank you for purchasing our synthesized Handy Transceiver. Your unit has been manufactured and checked under the strictest possible quality control to ensure that each unit leaves the factory in perfect condition. If in the unlikely event you find any defects or have any problem, please contact your dealer, our branch or service center.

Please read this manual carefully to obtain maximum performance & extended service life from the unit.

Features

Very compact and rugged construction

The transceiver is housed entirely in a high-impact polycarbonate (PC) cabinet and strengthened by an alloy chassis to achieve professional grade ruggedness required in most applications. Rubber gasket seals around all external controls & connectors keep out dust, rain or spray, assuring years of reliable operation even in harsh environment.

Easy programming

The channel frequencies, CTCSS/DCS codes, key functions and scan sequence can be programmed using PC.

Programmable keys

There are three feature keys which can be programmed to select Hi-Lo power level, normal or deep squelch, talkaround function, monitor function, enable and disable VOX, showing battery status, starts or ends scanning and direct access to certain channels.

MultiTalk

In addition to the PTT button, the three feature keys can be programmed to transmit on different channels for easy access to different parties without the need to turn the channel selector.
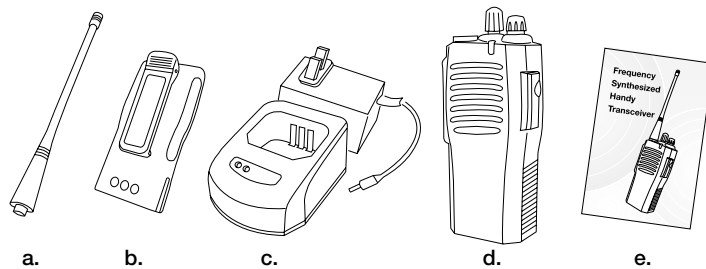
Scanning

Scanning can be selectable between normal sequential scan or priority scan via software.

Light weight

When equipped with the TLB-20 Li-ion battery pack, the whole trans-
ceiver weights only 330g.

Standard Accessories

a. Helical Rubber Antenna 1

b. TNB-18 7.2V 1100mAh Ni-mH Battery Pack with belt clip 1

c. TSC-10 Slow Charge Cradle with AC adapter 1

d. Main unit 1

e. User manual 1

a.   b.   c.   d.   e.

Precautions

Do not expose your transceiver unit to environment with extreme
temperature, humidity or dust.

Do not attempt to open the cabinet, there is no serviceable parts inside.
In case of defects, please consult your dealer, our branch or service center.

When the transceiver is left unused for a long period of time, it is rec-
ommended to detach the battery pack from the main body.

The unit should be protected from excessive vibrations, mechanical
impact or strong electromagnetic field.

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GETTING PREPARED

Battery

When the battery is new or its charge level is very low, it is necessary to charge the battery before use to ensure optimum capacity and performance. Always charge a new battery 14–16 hours before initial use. When charging a battery attached to the transceiver, switch off the transceiver to ensure a full charge.

It is recommended the battery should be at room temperature (about 25°C) when charging. Too cold temperature (below 10°C) may result in leakage of electrolyte and ultimately in failure of battery. Too high temperature (above 35°C) may reduce discharge capacity and affect the performance of the transceiver.

TSC-10 Slow Charger

1. Switch off the transceiver.

2. Place the battery, either singly or attached to the transceiver, into the slow charge cradle.

3. Plug in the supplied AC adapter to an AC outlet and connect its output plug to the DC jack at the back of the cradle.

4. The power indicator shall light up red.

5. The charging indicator shall light up green, showing the battery is in slow charge mode. If indicator does not light up, probably the battery is not inserted properly or the battery is damaged.

6. Leave the battery in cradle for 14 -16 hours if it is new or 10-11 hours if it is under re-charge. For Li-ion battery (TLB-20), the charging indicator will goes off once it is fully charged. For Ni-mH battery (TNB-18/TNB-19), the charging indicator continues to light up green even it is fully charged.
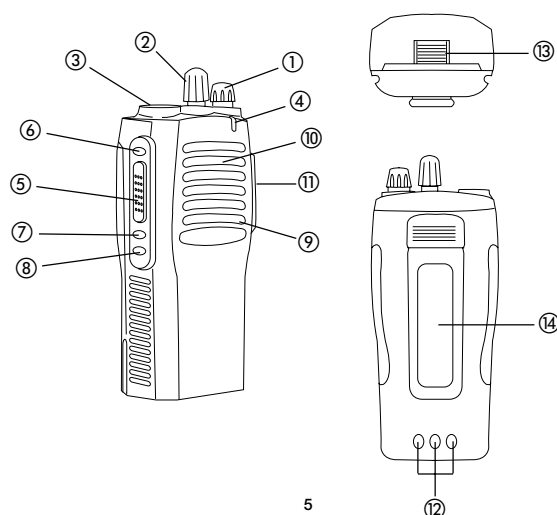
TQC-70 Intelligent Desk Top Rapid Charger (optional)/TQC-76 6 Gang Rapid Charger (optional)

1. Set the position of switch located at the bottom of cradle to suit to the type of battery being charged (Li-ion or Ni-mH. For Ni-mH, also select the battery capacity : 1100mAh or 1600mAh). Incorrect setting may lead to battery not fully charged or cause damage to battery.

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2. Switch off the transceiver.

3. Place the battery, either singly or attached to the transceiver, into the rapid charger cradle.

4. Plug in the switching power supply to an AC outlet and connect its output plug to the DC jack at the back of the cradle.

5. The power indicator shall light up red.

6. The charging indicator shall show following :

Charging LED colour	Status
Blinking red	Battery improperly inserted or battery is damaged or battery temperature too high or too low.
Steady red	Battery is in rapid charge mode
Steady green	Battery is 90% charged up and is under trickle charging
Blinking green	Battery is fully charged

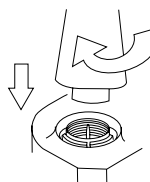## CONTROLS AND CONNECTORS

1. VOL (Volume) Control

Switch on or off the transceiver and adjust the speaker volume. Turn clockwise to increase the volume.

2. CH (Rotary Channel Selector) Control

Set the transceiver to operate on different channels.

3. Antenna Connector

This connector will accept the supplied helical rubber antenna. Besure to screw in the antenna securely to obtain best performance on reception and transmission.

4. Tx/Busy/Low Battery Indicator

The 2-colour LED lights up in red when signal is being transmitted and in green when signal is being received. The LED will blink red on transmit when batteries become exhausted and a beep tone will sound to alert the user. If one of the feature key is programmed to show battery level, the charge status of battery is shown by colour of this indicator as follow :

Battery Level	Indicator Colour
Full	Green
Sufficient	Red
Low	Blinking Red

5. PTT (Push-To-Talk) Button

Press and hold this button to transmit, release to listen.

6. Feature Key 1

Programmable by dealer to have different functions.

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7. Feature Key 2

Programmable by dealer to have different functions

8. Feature Key 3

Programmable by dealer to have different functions

9. Microphone

When transmitting, hold the microphone 2 to 5 cm away from the mouth and speak clearly into it.
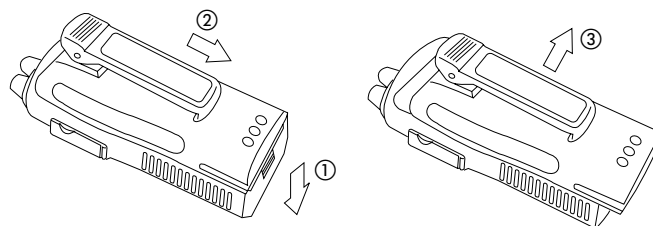
10. Speaker

11. Speaker Mic Jack

For connection to the headset or hand microphone which are available as option.

12. Desk Top Charger Receptacle

Contact with the terminal pins of the charger cradle for charging up the battery pack.
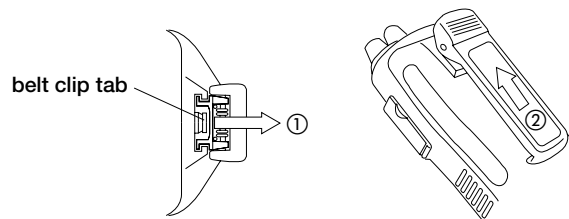
13. Battery Latch

To disengage the battery pack, slide and hold the battery latch towards the front of the transceiver, then slide the battery pack down from the top of the transceiver about 1 cm. Once the battery pack is free from the battery rail, lift it directly from the transceiver.

14. Belt Clip

To remove belt clip, pull the belt clip tab away from the battery pack and slide the belt clip upward along the groove.

belt clip tab

FEATURE KEYS

The 3 feature keys on the side can be programmed by your dealer to have various functions which are activated by following type of key press :

Momentarily press – press the key momentarily then release

Long press – press and hold the key for at least 2 seconds before releasing

Hold press – press and hold the key to show the battery level

Tones will also be heard when pressing the feature keys :

One short beep (high pitch)   Negative indicator tone

Two short beeps (high pitch)   Positive indicator tone

Long continuous beep (high pitch)   Fail tone

Function	Press	Positive indicator tone	Negative indicator tone	Fail tone
VOX	Momentarily	VOX enabled	VOX disabled	—
Talkaround	Momentarily	By pass repeater	Use repeater	—
Squelch	Momentarily	Tight squelch	Normal squelch	—
RF power	Momentarily	High power selected	Low power selected	—
Scan	Momentarily	Scan starts	Scan stops	—
Monitor	Long	Squelch opened	Squelch closed	—
Nuisance channel delete	Momentarily	Channel deleted	—	—
PTT/ Feature Key	—	—	—	No frequency or function being programmed
Battery level	Hold	—	—	—

FUNCTION DESCRIPTION

VOX (Voice Activated Transmission)

When connected to the optional headset, your voice can be transmitted without pressing the PTT button, this is useful when hands-free operation is required. The VOX function can be enabled or disabled by pressing the preprogrammed VOX feature key.

Note : 1. Only channels that have been preprogrammed by your dealer to enable VOX can have VOX function.

2. The VOX function will become disabled once PTT button is pressed.

3. To enable VOX, switch off the transcieiver and the switch on again.
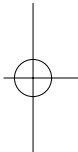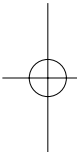
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Talkaround

This function helps you to talk with another transceiver when you are out of the repeater service coverage but within the communication range of another transceiver or the repeater is out of order. Press the preprogrammed Talkaround feature key to toggle between repeater mode and by pass repeater mode.

Squelch

Tightening the squelch can filter out nuisance signal and background noise, however, note that calls from distant locations are filtered off as well. Press the preprogrammed Squelch feature key to toggle between tight and normal squelch.

RF Power

Selecting high power allows you to communicate longer distance while selecting low power helps to conserve battery'ss charge.

Press the preprogrammed RF Power feature key to toggle between high and low power.
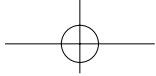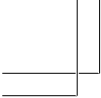
Monitor

This function allows you to hear all signals on the operating channel disregard of the CTCSS/DCS code being programmed. A long press of the preprogrammed Monitor feature key set the transceiver in Sticky monitor mode. A short press of Monitor feature key set the transceiver back to normal squelch mode.

PTT (Push-To-Talk)

The feature key can be preprogrammed to transmit on any channel once pressed, this allows quick access to other channels in addition to the operating channel. The transmit indicator will light up red when preprogrammed PTT feature key is pressed.

Scan

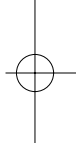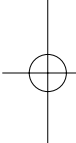This refers to sequential scan where all the programmed channels are

scanned in a sequential order. The transceiver will stop on a channel when it detects activity on it. If the CTCSS/DCS code of the received signal corresponds to the same as being programmed in the transceiver, the busy indicator will light up green, you can hear the signal until it goes off. Otherwise, scanning will continue to the next channel.

The transceiver will stay on the activity detected channel for a default period of time after activity has ceased so that you may respond to the transmission.

Press the preprogrammed Scan feature key to start and stop sequential scan.

Nuisance Channel Delete

During scanning, there may be some channels that constantly generate unwanted signals or noise and the transceiver becomes lock on to such channels. It is possible to remove these channels temporarily from the scan sequence using Nuisance Channel Delete function.
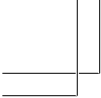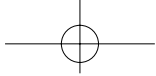
When the transceiver is on the nuisance channel, a long press of the preprogrammed Nuisance Channel Delete feature key will temporarily delete that channel from the scan sequence as confirmed by the positive indicator tone. There are 3 possible ways to restore the deleted channels into scan sequence :
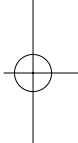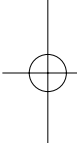
(1) Switch off the transceiver then switch on again.

(2) Select a different channel and once you return to the original channel, the deleted channels will be restored.

(3) Press the preprogrammed Scan feature key to stop scanning, then press the same key again to start scanning, the deleted channels will be restored.

N.B. It is not possible to delete the last two remaining channels in the scan sequence.

OPERATION

1. Switch on the transceiver by turning the VOL control knob ① clockwise, a beep tone will be heard to confirm successful power up. To turn off, turn the VOL control knob ① counter-clockwise until a click sound is heard.

2. Adjust the VOL control knob ① gradually to obtain a appropirate level of sound from the speaker ⑩. This can be done by pressing the preprogrammed Monitor feature key (if your dealer has programmed such function) to open the squelch and hear the white noise..

3. Turn the CH control knob ② clockwise or counterclockwise to select the desired operating channel. If an empty channel is selected (ie. no frequency is programmed), a continous beep sound will be heard.

4. To transmit, hold the transceiver upright and press PTT button ⑤, talk at a distance of about 2-5 cm from the built in microphone ⑨. The Tx indicator ④ will light up red.

5. Whenever a signal is received and its CTCSS/DCS code matches with the preprogrammed code, sound will be heard from the speaker ⑩. Otherwise only the busy indicator ④ will light up green but no sound is being heard.

6. Depending on the functions that your dealer has programmed into the transceiver, you can activate the various functions by pressing the three feature keys ⑥, ⑦ & ⑧ on the side.

7. Your dealer can program a scan list into any channel. Once the transceiver is set to that channel, scanning will start automatically. The scanning can be a priority scan which means even the transceiver is operating on a certain channel, it will check for activity on the priority channel and will immediately switch to priority channel once activity is detected. The indicator ④ will flash red and green at the same time while the transsceiver is under scanning.

8. The CH control knob ② can be locked by switching on the transceiver while holding down the feature key 3 ⑧. The transceiver will stay operate on the channel at time it is switched on even when the CH control knob ② is turned. To unlock, switch off transceiver and then switch on again.

Note that a channel programmed with a scan list cannot be programmed with channel frequencies.

ACCESSORIES

TLB-20   7.2V 1450mAh Li-ion Battery Pack

TNB-19   7.2V 1600mAh Ni-mH Battery Pack

TNB-18   7.2V 1100mAh Ni-mH Battery Pack

TQC-70   Intelligent Rapid Desk Top Charger

TQC-76   6 Gang Rapid Charger

TSM-1   Hand Speaker Microphone

TSM-2   Headset with PTT

TSM-3   VOX Headset

TLC-19   Soft Carrying Case for TNB-19 / TNB-18

TLC-20   Soft Carrying Csae for TLB-20

TPS-1   Programming Software Disc

TPC-2   Programming Cable

FCC Information

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.
OPERATION IS SUBJECT TO THE CONDITION THAT THIS DEVICE DOS NOT
CAUSE HARMFUL INTERFERENCE.

MODIFICATIONS OR CHANGES NOT EXPRESSLY APPROVED BY THE
MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE
EQUIPMENT.

IMPORTANT NOTE: To maintain compliance with the FCC's RF exposure guidelines, hold the
transmitter and antenna at least 1 inch (2.5 centimeters) from your face and speak in a normal
voice, with the antenna pointed up and away from the face. If you wear, the handset on your body
while using the headset accessory, use only the manufacturers supplied belt clip for this product
and ensure that the antenna is at least 1 inch (2.5 centimeters) from your body when transmitting.
To provide the recipients of your transmission the best sound quality, hold the unit at least 5cm (2
inches) from the mouth, and place the antenna slightly off to one side.

Your radio generates radio frequency electromagnetic energy during
transmission mode. The radio is designed for and classified as
"Occupational Use Only" and must be used by individuals who are
properly trained and aware of these hazards and the means in which to
minimize such hazards. This radio is NOT intended for use by the
"General Population" or in uncontrolled environments.

To ensure that your exposure to radio frequency electromagnetic energy is
within the FCC allowable limits for occupational use, always follow these
guidelines:
DO NOT operate the radio without a proper antenna attached, as this may
damage the radio and increase your RF exposure. A proper antenna is
supplied with the radio by the manufacturer or an antenna specifically
authorized by the manufacturer for use with this radio.
DO NOT transmit for more than 50% of the total radio use time (this is a
maximum 50% duty cycle radio). Transmitting more than 50% can cause
FCC RF exposure compliance requirements to be exceeded. Pressing the
PTT switch enables the radio to transmit.
ALWAYS use ONLY authorized accessories with this radio. Use of
unauthorized accessories can cause the FCC RF Exposure compliance
requirements to be exceeded.