CRYSTAL

Colour Display

DB477i

User Manual

www.crystalm.com.au

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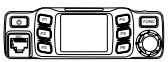

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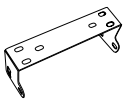

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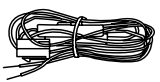
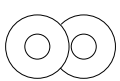


DC Power cable with Fuse Holder



Non-slip mat

Fuse(10A 250V)

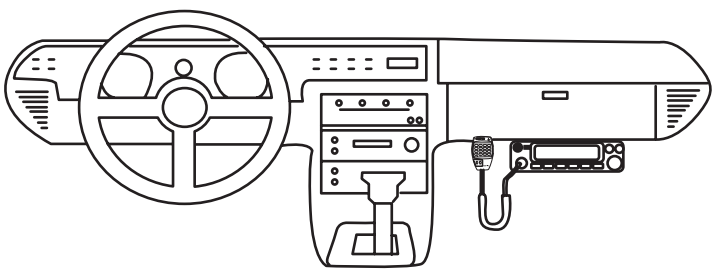
Optional accessory (sold separately)

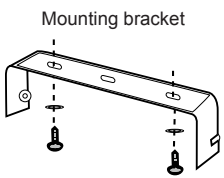
PC programming cable
(CUSBPC)

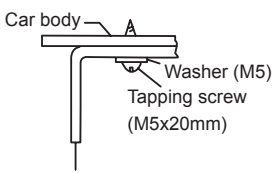
Mobile installation

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 and flat washers.

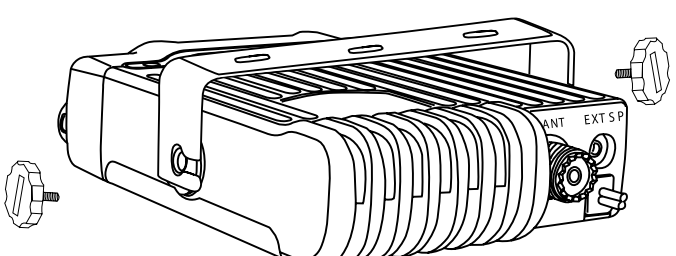






2. Position the transceiver, then insert and tighten the supplied hexagon SEMS screws

□ Double check that all screws are tightened to prevent vehicle vibration from loosening the bracket or transceiver.



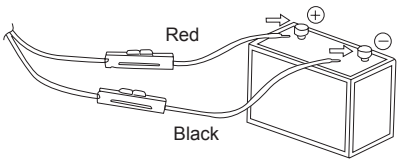
DC Power Cable Connection

NOTE Locate the power input connector as close to the transceiver as possible.

Mobile Operation

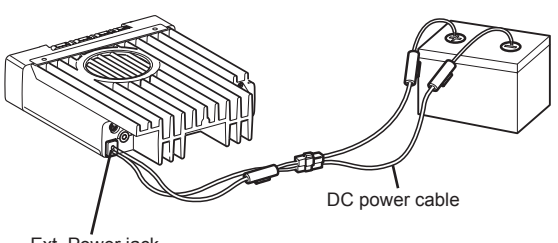
The vehicle battery must have a nominal rating of 12V. Never connect the transceiver to a 24V battery. Be sure to use a 12V vehicle battery that has sufficient current capacity. If the current to the transceiver is insufficient, the display may darken during transmission, or transmitting output power 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.
   - 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 installing cable, to avoid the risk of moisture, please use heat-resistant tape to tie together with fuse box. Don't forget to reinforce whole cable.
3. In order to avoid the risk of short circuit, please remove negative (-) terminal of battery, then connect with radio.
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.

If the ignition-key on/off feature is desired (optional feature), use the optional 12V Plug cable. Connect one of the cables between the ACC terminal or a 12v Plug that operates with the vehicle ignition or ACC switch on the vehicle and EXT POWER jack on the rear side of the unit.

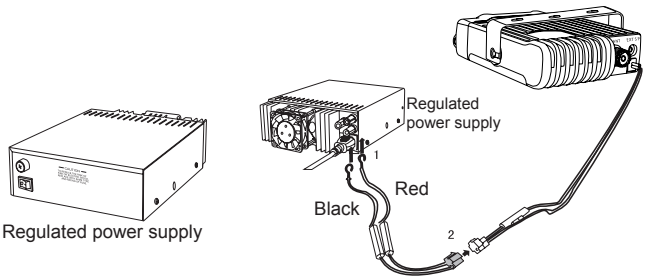


NOTE In some cars,the 12V plug is always powered. If this is the case, you cannot use it for the ignition key on/off function.

7. When the ignition key is turned to ACC or ON (Start) position with the radio turned off, the power switch illuminates. The illumination will be turned off when the ignition key is turned to the off position.

To turn on the unit, press the power switch manually while it is illuminated. (While ignition key is at ACC or ON position)

8. When the ignition key is turned to ACC or ON position with the radio's power switch on, the unit turns on automatically and the power switch will be lit. Turn the ignition key to OFF position or manually turn the power switch off to shut down the radio.
9. When using extra cable, power consumption: 5 mAH.
10. Without this function, user can turn on/off radio by Power knob.



Fixed Station Operation

In order to use this transceiver for fixed station operation, you will need a separate 13.8V DC power supply (not included). Please contact your local dealer to purchase.

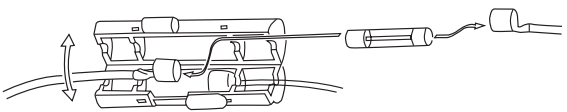
The recommended current capacity of your power supply is 12A.

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 (not supplied).
   - Do not substitute a cable with smaller gauge wires.
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 Crystal M dealer or an authorized Crystal M service center for assistance.



Fuse Location	Fuse Current Rating
Transceiver	10A
Supplied Accessory DC power cable	10A

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.

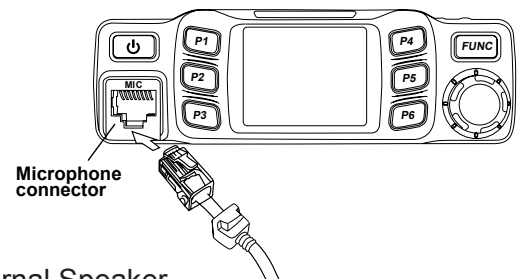
Use a 50Ω impedance antenna and low-loss coaxial feed-line that has a characteristic impedance of 50Ω, to match the transceiver input impedance. Coupling the antenna to the transceiver via feed-lines having an impedance other than 50Ω reduces the efficiency of the antenna system and can cause interference 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:

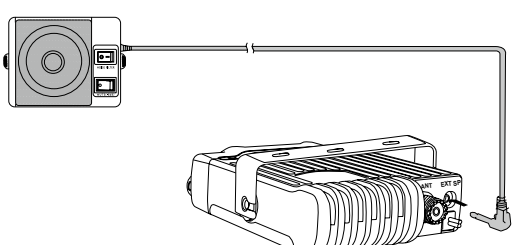
Microphone

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.

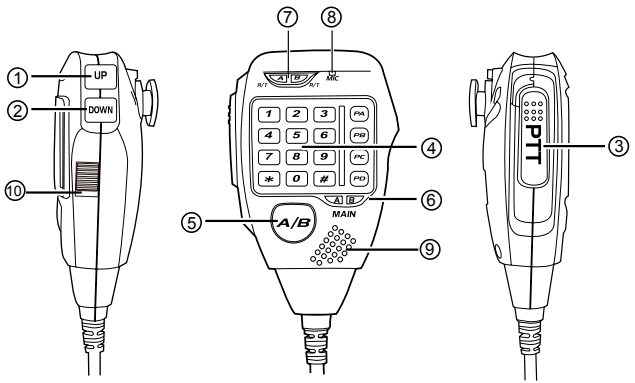


External Speaker

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



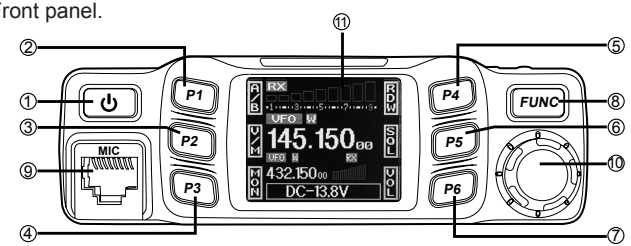
Microphone Buttons



NO.	Key	Functions
1	UP	Increase frequency, channel number or setting value
2	DOWN	Decrease frequency, channel number or setting value
3	PTT	Press the PTT (Push-TO-Talk) key to transmit
4	Number Key	Input VFO frequency or DTMF dial out etc.
5	A/B band	Choose A or B as Main band
6	Band indicator	The indicator light on for Main band
7	TX/RX indicator	Light green while receiving, Light red while transmitting
8	MIC	Speak here during transmission
9	Speaker	Internal speaker
10	Lock UP/DOWN	Not applicable

Display

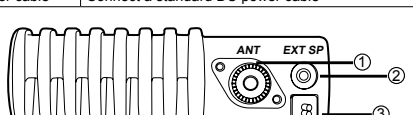
Front panel.

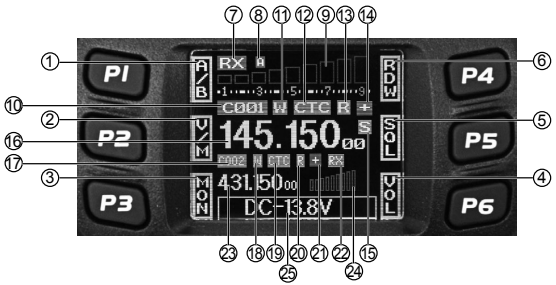


NO.	Key	Functions
1	⏻	Power On/Off/Mute
2	P1	Self define key
3	P2	Self define key
4	P3	Self define key
5	P4	Self define key
6	P5	Self define key
7	P6	Self define key
8	FUNC	Function key/ function group key
9	MIC	Microphone Jack
10		Channel switch/Push button/Key lock
11	LCD display	Display channel/frequency/function setting

Back panel.

NO.	Key	Functions
1	Antenna connector	Connect a 50 ohm antenna
2	Ex-Speaker Jack	Connect external speaker (Not supplied)
3	Power cable	Connect a standard DC power cable





NO.	Functions
1	Displays the self define function when press P1
2	Displays the self define function when press P2
3	Displays the self define function when press P3
4	Displays the self define function when press P4
5	Displays the self define function when press P5
6	Displays the self define function when press P6
7	Displays the main channel TX or RX status
8	Displays when Automatic power off function is on
9	Displays the main channel field strength
10	Displays main channel number in channel mode
11	Displays when set band width for main channel
12	Displays when main channel set CTCSS/DCS
13	Displays when main channel reverse function is on
14	Displays when main channel offset function is on
15	Displays when main channel is in scan list
16	Displays main channel frequency or name
17	Displays sub channel number in channel mode
18	Displays when setting band width for sub channel
19	Displays when current sub channel set CTCSS/DCS
20	Displays when sub channel reverse function is ON
21	Displays when sub channel offset function is ON
22	Displays when sub channel receive a signal
23	Display sub channel frequency or name
24	Displays signal strength of sub channel
25	Display voltage and menu setting

Changing display modes

You can set the radio to work in Amateur Transceiver mode or Professional Transceiver mode. There are also 2 levels operation menu to set functions as you need. It is easy and convenient. FUNC MENU is for set background function, CHAN MENU for set channel function, MINI KEY menu for set self define key, HAND KEY for set self mic define key.

1. Working Mode:

A. By programming software: In PC software's "General Setting" menu, choose "Display Mode" to select Amateur Transceiver mode or Professional Transceiver mode.

B. By manual setup: Please refer to "Display Mode Setup" in Page 15.

2. Amateur Transceiver Mode:

Except setting as "CH" mode, others considered as Amateur transceiver mode. Under this mode, press V/M matched PX key to switch between Channel mode and VFO mode.

A. Frequency+Channel mode: When set display as "FRQ", it enters into Frequency+Channel mode, new setting of channel operation and shortcut operation can be temporarily used by user. Once the radio is turned off or switched to anothe channel, the temporary setting will be erased and back to initial settings. **(pic1)**

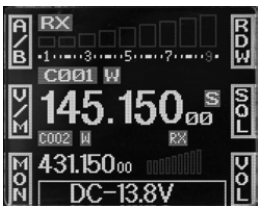
B. Channel+Name Tag Mode: When set display as "NM",it enters into Channel +Name Tag mode. At this mode, it will display corresponding channel name when the current channel is edited with name. Otherwise, it will display frequency + channel. Its operations are same as frequency + channel mode. **(pic2)**

3. Professional Transceiver Mode:

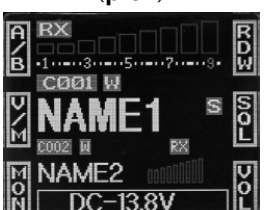
When set display mode as "CH" , it enters into Professional Transceiver mode. If there is corresponding name for current channel , the LCD will display current channel name otherwise it shows current channel number. **(pic3)**

NOTE If transceiver programmed as professional transceiver mode and locked, you can't return to amateur transceiver mode by manual operation from general setting.

4. Under any mode, the FUNC MENU setting can be changed and saved.



(**pic1**)



(**pic2**)

(**pic3**)

Installing USB Cable Driver Program

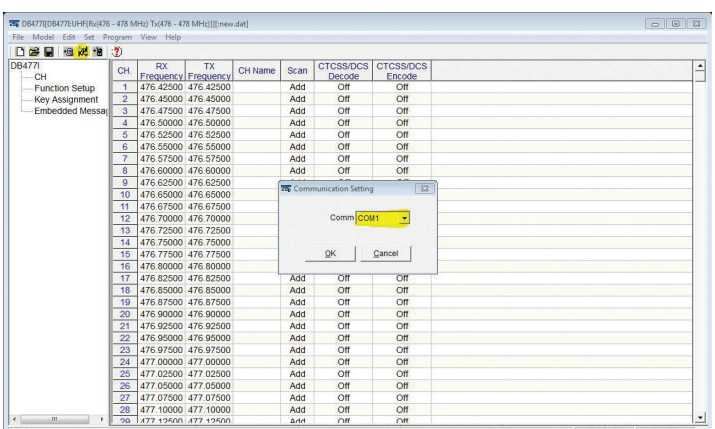
You can customize the DB477I with the use of the (CUSBPC) programming USB cable (not included).

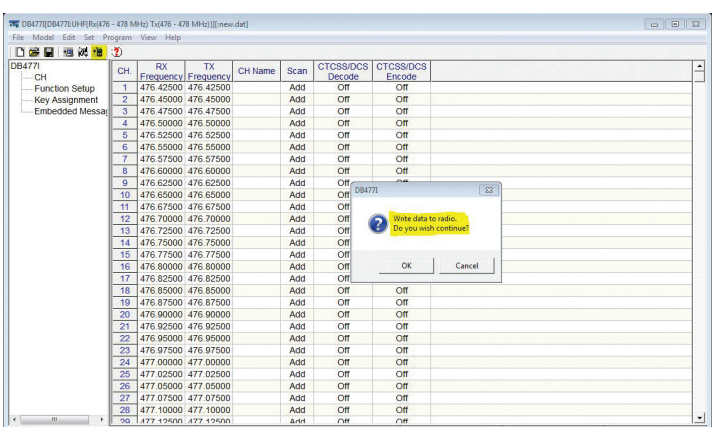
Purchase from your retailer. You will also have to download and install DB477I_Setup_1.00 software to a Windows PC only.

Downloaded from this link. www.tdj.com.au/firmware/Crystal/DB477I

Plug in the USB software cable to your computer, your computer will find the compatible drivers. When drivers are installed plug the RJ45 plug to the unit and turn it ON. Open up the software and click on this symbol 

Choose the correct COM port. Choose any of the settings and configure to your needs. To save setting to your DB477I click on this symbol 
This will write to the unit and save the settings.





Switching The Power On/Off

Short press ⏻ to power on the radio or set automatic power on according the funtion menu, hold ⏻ for over 2 seconds to power off the radio.

Adjusting The Volume

1. Short press the PX key programmed as VOL control, the LCD display VOL:XX then turn the channelk switch to adjust volume level

NOTE X symbol signifies the number value of the self define keys. Refer to page 10

2. During receiving, short press ⏻ to mute the speaker, the LCD displays: AUDIO:MT, short press it again to return last volume level

NOTE During communication, volume level can be adjusted more accurately.

Adjusting Frequency

1. By channel knob: In VFO mode, turn channel knob can adjust frequency, push channel knob, the matching charactor will flash, then turn channel knob to adjust the frequency by step size 1K, 10K, 100K, 1Mz or 10MHz.
   Note: The microphone UP/DOWN key can also adjust the frequency, each press move one step size. hope the key can fast adjust frequency. If the channel knob is programmed as VOL function, users need to press the PX key which programmed as FRQ function, when the LCD displays "VFO FREQ", turn channel knob to adjust frequency.
2. By number key: In VFO mode, you can input wanted frequency by the microphone number key. For example if want 145.125Mhz, just press key 1, 4, 5, 1,2,5, if want 145Mhz, just press 1, 4, 5, #.The input is invalid if the frequency is over range.

NOTE 2.5k, 5k, 6.25k, ,10k, 12.5k, 20k, 25k, 30k and 50k step size available for this radio.

Adjust channel

1. Adjust channel by channel switch: In channel mode, turn channel knob to adjust the channel, the UP/DOWN key in the microphone can also adjust the main channel

Note: If there is an empty channel, the radio will jump over it to next channel. if the channel knob is programmed as VOL function, users need to press the PX key which programmed as CH function, when the LCD displays "CH XX ", turn channel knob to adjust channel

2. By number key: In CH mode, you can input wanted channel by the microphone input 3 numbers (001-200) , 001 stands for channel 1, 200 stands for channel 200. if input channel is an empty channel, the radio will report an error and return to last channel.

Receiving

When the channel you are operating is being called, the screen shows red and displays field strength, allowing you to hear the call.

Note: When the RX icon and field strength flashes, but you can not hear the call, it means current channel receives matching carrier but unmatching signaling. Refer to optional Signaling combination setup on Page 18)

Transmitting

Hold PTT and speak into microphone. The radio will start to transmit. Hold the microphone approximately 2.5-5.0cm from your lips and speak clearly into microphone.

Note: Only available to transmit on main band.

Channel Scan

In channel mode, this function is designed to monitor signal of all frequency points under each step size

1. In channel mode, press FUNC key to switch function group, choose the PX key defined as SCN function
2. Short press the PX key defined as SCN function to start frequency scan, the LCD displays: S
3. Turn channel knob or press microphone UP/DOWN key can change scan direction
4. Turn channel know press any key except microphone UP/DOWN key to exit

Scan Skip

In channel mode, press FUNC key to switch function group, choose the PX key defined as SCN function. Hold this key to add into or delete from scan list

1. When LCD displays: S, the current channel is in scan list
   When LCD does not display: S, the current channel is not in scan list

squelch off/squelch off momentary

The PX key defined as MON function can set as squelch off/squelch off momentary. You can use it to monitor weak signal

1. Press FUNC key to switch function group, choose the PX key defined. as MON function
2. Short press the PX key defined as MON function to turn on squelch
   Squelch off: Press the PX key to disable squelch, press it again to resume squelch
   Squelch off momentary: Hold the PX key to disable squelch, release it to resume squelch

NOTE The above functions should be set in programme software.

Keypad lockout

Avoiding unintentional operation, this function will lock the keys except PTT, PUSH, ⏻ Keys

1 Long press PUSH button (refer to P10, function 10), the downside of the LCD displays: Key Lock, meaning the keypad is locked

2. Long press it again, the downside LCD displays: Key Unlock, meaning the keypad is unlocked

1. Press & hold FUNC button to activate SELECT MENU
2. Press P4,P6 or turn CHANNEL KNOB to choose through menu list. Press P5 go directly to bottom of SELECT Menu.
3. Press PUSH/CHANNEL KNOB button to enter FUNC MENU list.
4. Press P4,P6 button or turn channel knob to scroll up & down through specific settings. Press P4,P6 button or turn CHANNEL KNOB to change each individual setting
5. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

1 Beep (Button sound)

1. Enter FUNCTION MENU list, choose No.01 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
4. OFF,1,2,3,4,or 5.
5. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

2 DSP (Display mode setup)

This radio has 3 different display modes: Channel mode, Name Tag mode, & Frequency mode

1. Enter FUNCTION MENU list, choose No.02 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
4. **CH:** Channel mode. **NM:** Channel + Name Tag mode (Amateur transceivermode). **FR:** Frequency+Channel mode
5. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

3 SQL (Squelch level setup)

This function is used for setting RX signal strength, the calling will be heard only when it reaches setted level, otherwise the radio will be muted.

1. Enter FUNCTION MENU list, choose No.03 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   Total of 10 levels, 1-9/OFF
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

4 VOL (Volume level setting)

1. Enter FUNCTION MENU list, choose No.04 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   Total of 36 levels, 1-36
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

5 PWD (Password setting)

1. Enter FUNCTION MENU list, choose No.05 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   ON: Turn on password function **OFF:** Turn off password function
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit
5. To unlock this function use the numerical buttons on the handpiece. Default password is 123456. Software must be used to create your own password.

6 SCM (Scan dwell time setup)

1. Enter FUNCTION MENU list, choose No.06 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   ON: Turn on password function
   OFF: Turn off password function
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

7 SCT (Scan pause time setup)

1. Enter FUNCTION MENU list, choose No.07 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   5S : it pauses 5s once scanning a matching signal, then resume scan
   10S: it pauses 10s once scanning a matching signal, then resume scan
   15S: it pauses 15s once scanning a matching signal, then resume scan
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

8 AOP (Automatic power on setup)

When AOP is activated, the radio is automatically power on once the car is power on.

1. Enter FUNCTION MENU list, choose No.08 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   ON : Enable AOP function
   OFF: Disable AOP function
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

9 DIM (Backlight brightness setup)

1. Enter FUNCTION MENU list, choose No.09 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose brightless level 1, 2, 3
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

10 TOT(Time out timer)

The time-out timer limits continuous transmitting time. When transmit time last over programmed value, the transmitting will stop and emit a prompt.

1. Enter FUNCTION MENU list, choose No.10 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   1-30: 1-30 minutes range available by 1 minute/step
   OFF: Turn off TOT function
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

11 APO (Automatic power off)

Once APO is activated, the transceiver will be automatically switched off when the pre-set timer runs out.

1. Enter FUNCTION MENU list, choose No.11 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   30Min: Automatically powers off after 30 minutes
   60Min: Automatically powers off after 60 minutes
   120Min: Automatically powers off after 120 minutes
   OFF: Automatic power off function is off
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

12 TBST (Pilot Frequency)

This function uses to start repeater. It needs a certain intensity Pilot Frequency to start dormant repeater. As usual,no need to send pilot frequency again once repeater started.

1. Enter FUNCTION MENU list, choose No.12 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   1000HZ: Pilot frequency1000HZ
   1450HZ: Pilot frequency 1450HZ
   1750HZ: Pilot frequency1750HZ
   2100HZ: Pilot frequency 2100H
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

13 DIR (LCD display direction setup)

1. Enter FUNCTION MENU list, choose No.13 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   FAIL: Reverses display
   STAN: Normal display
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

14 SPK (Microphone speaker)

1. Enter FUNCTION MENU list, choose No.14 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   MAIN: Turn on Main speaker
   M&H: Turn on Main speaker and microphone speaker
   HAND: Turn on microphone speaker
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

15 RST (Reset factory default)

If your radio seems to be malfunctioning,resetting the microprocessor may solve the problem

1. Enter FUNCTION MENU list, choose No.15 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   ALL: All channel, signaling function setup resume factory default
   OPT: No 10-18 function menu setup resume factory default
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

1. Press & hold FUNC button to activate SELECT MENU
2. Press P4,P6 or turn CHANNEL KNOB to choose through menu list. Press P5 go directly to bottom of SELECT Menu
3. Press PUSH/CHANNEL KNOB button to enter CHAN MENU list
4. Press P4,P6 button or turn channel knob to scroll up & down through specific settings. Press P4,P6 button or turn CHANNEL KNOB to change each individual setting
5. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

1 RCDT (CTCSS/DCS decode setup)

1. Enter CHAN MENU list, choose No.1 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   OFF: Turn off CTCSS/DCS decode **CTC:** Choose CTCSS decode
   DCS: Choose DCS decode
4. In CTC mode, hold PUSH/CHANNEL KNOB to choose group, rotate to change number
   CTCSS: 62.5-254.1HZ, and one self-define group, total 52 groups
5. In DCS mode, push and hold the PUSH/CHANNEL KNOB button to choose setting, rotate to change number.
6. Press FUNC button to choose positive or inverse code
   DCS: 000N-777I, total 1024 groups **N** is positive code, **I** is inverse code
7. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

NOTE The working of CTCSS/DCS decode shall be work associated with the squelch mode setup. (Refer to Signaling combination setup on page 18)

2 TCDT (CTCSS/DCS encode setup)

1.Enter CHAN MENU, choose No 2 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   OFF: Turn off CTCSS/DCS decode **CTC:** Choose CTCSS decode
   DCS: Choose DCS decode
4. In CTC mode, hold PUSH/CHANNEL KNOB to choose group, rotate to change number
   CTCSS: 62.5-254.1HZ, and one self-define group, total 52 groups
5. In DCS mode, push and hold the PUSH/CHANNEL KNOB button to choose setting, rotate to change number.
6. Press FUNC button to choose positive or inverse code
   DCS: 000N-777I, total 1024 groups **N** is positive code, **I** is inverse code
7. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

NOTE This settting is valid only when CTCSS/DCS signaling added.

3 SIGNAL (Signaling combination setup)

1.Enter CHAN MENU, choose No 3 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   SQ: You can hear the call when receiving a matching carrier
   CDT: You can hear the call when receiving a matching carrier and CTCSS or DCS signal

NOTE This settting is valid only when CTCSS/DCS signaling added

4 REV (Reverse TX/RX)

When turn of this function, the TX frequency truns to RX frequency and RX frequency turns to RX frequency. the signaling will also reversed if CTCSS/DCS signaling exist in this channel.

1. Enter CHAN MENU list, choose No.4 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   ON: Turn on reverse function
   OFF: Turn off reverse function
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

5 TALK (Reverse TX/RX)

This function enable direct communication with other radios in case the repeater is not activated or when out of the repeater range. The transceiver will transmit by RX frequency with its CTCSS/DCS signaling.

1. Enter CHAN MENU list, choose No.5 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
   ON: Turn on talk function
   OFF: Turn off talk function
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

NOTE This function is hide when RTDF function is on

6 OFFSET (Offset frequency and direction setup)

1. Enter CHAN MENU list, choose No.6 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   - : Minus offset, means transmitting frequency lower than receiving frequency
   + : Plus offset, means transmitting frequency higher than receiving frequency
   OFF: OFFSET is turn off. Transmitting frequency is same as receiving frequency
   VHF: 0 - 38 Mhz frequency available
   UHF: 0 - 90 Mhz frequency available
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

NOTE OFFSET frequency is adjusted according to step size setup
This function is hide when RTDF function is on

7 NAME (Editing channel name)

Edit a name for a channel. If the display mode is channel name, it will display the name edited in this menu. Otherwise it will display the frequency

1. Enter CHAN MENU list, choose No.7 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting
4. Press PUSH to confirm and enter editing for next character
5. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

NOTE In Frequency (VFO) mode or RTDF function is on, this function will be auto-hidden

8 LOCK (Busy Channel Lockout)

Busy channel lockout disables transmitting while RX singal is received. Once the channel is busy and you press PTT, the radio will beep as a warning and get back to receiving

1. Enter CHAN MENU list, choose No.8 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting

   BU: Signaling busy lockout, transmitting is inhibited when current channel receives a matching carrier

   RL: Signaling busy lockout, transmitting is inhibited when current channel receives a matching carrier but dis-matching CTCSS/DCS code

   OFF: Busy channel lockout is disabled.Transmitting is allowed in any receiving status

4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

9 TX

1. Enter CHAN MENU list, choose No.9 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting

   ON: TX allowed, press PTT to transmit

   OFF TX not allowed, press PTT will emit a beep

4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

1. Press & hold FUNC button to activate SELECT MENU
2. Press P4,P6 or turn CHANNEL KNOB to choose through menu list
   Press P5 go directly to bottom of SELECT Menu
3. Press PUSH/CHANNEL KNOB button to enter MINI KEY MENU list

MINI KEY (Assign button shortcuts)

1. Turn the PUSH/CHANNEL KNOB button to choose setting
2. Press SELF DEFINE BUTTONS P1-P6 to select setting
3. Rotate PUSH/CHANNEL KNOB button to change setting
4. Press PUSH/CHANNEL KNOB button to change alternate settings
5. Wait for display to change to store setting and exit

HAND KEY (Microphone keypad setup)

1. Press & hold FUNC button to activate SELECT MENU
2. Press P4,P6 or turn CHANNEL KNOB to choose through menu list.
   Press P5 go directly to bottom of SELECT Menu
3. Press PUSH/CHANNEL KNOB button to enter HAND KEY MENU list
4. Press P4,P6 button or turn channel knob to scroll up & down through specific settings. Press P4,P6 button or turn CHANNEL KNOB to change each individual setting
5. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

1 H-DIM (Microphone keypad backlight setup)

1. Enter HAND KEY MENU list, choose No.1 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   OFF, 1-31 levels of brightness
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

NOTE This function can also be done with downloadable software.
It also requires programming cable sold separately. See page XX

2 H-PA,H-PB, H-PC & H-PD (Microphone self-define keypad setup)

This allows the user to customize the PA, PB, PC & PD buttons on the microphone

1. Enter HAND KEY MENU list, choose No.2,3 or 4 function
2. Press the PUSH/CHANNEL KNOB button, the menu value on the LCD turns a green colour
3. Turn the PUSH/CHANNEL KNOB button to choose setting.
   Assign V/M, SQL, VOL, CDT, REV, SCN, TALK, SFT, MON & DIR to the appropriate PA, PB, PC & PD buttons
4. Press PUSH/CHANNEL KNOB, P3 button or wait for display to change to store setting and exit

Specifications

General	
Frequency Range	UHF: 476-477MHz
Number of Channels	80 Channels
Channel Spacing	12.5K (Narrow Band)
Operating Voltage	13.8V DC±15%
Squelch	Carrier/CTCSS/DCS
Frequency Stability	±5ppm
Operating Temperature	-20°C~+60°C
Dimensions (WxDxH)	124 (W) x 163(D) x 39 (H) mm
Weight	0.64kg

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

Receiver (ETSI EN 300 086 standard testing)	
	Narrow Band
Sensitivity (12dB Sinad)	≤ 0.35μV
Adjacent Channel Selectivity	≥ 60dB
Audio Response	+1~-3dB(0.3~2.55KHz)
Hum & Noise	≥ 40dB
Audio Distortion	≤5%
Audio Power Output	> 2W@8Ω

Transmitter (ETSI EN 300 086 standard testing)	
	Narrow Band
Power Output	5W
Modulation	11KΦF3E
Adjacent Channel Power	≥ 60dB
Hum & Noise	≥ 36dB
Spurious Emission	≥ 60dB
Audio Response	+1~-3dB(0.3~2.55KHz)
Audio Distortion	≤5%

Problem	Possible Causes and Potential Solutions
(1) Power is on, but no display	+ and - polarities of power connection are reversed. Connect red lead to plus terminal and black lead to minus terminal of DC power supply
(2) Fuse is blown	Check and solve problem resulting in blown fuse and replace fuse with new fuse
(3) No sound comes from speaker	**A**. Squelch is muted. Decrease squelch level. **B.** Tone or CTCSS/DCS squelch is active. Turn CTCSS or DCS squelch is off
(4) Key and Dial do not function	Key-lock function is activated. Cancel Key-lock function
(5) No Scan	Did not list the channel in the scan when programmed
(6) The whole band with noise after programmed	The squelch has opened during programmed
(7) Communication range was short, bad sensitivity	**A.** Check the antenna is well or not, and check the antenna port whether well connected. **B.** Antenna connector has debris or is damaged.
(8) Can not talk with other members within the group	**A**. Frequency/channel different, pls modify **B.** CTCSS/DCS different, pls reset **C.** Out of the communication range

50 groups CTCSS Tone Frequency(Hz)

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

1024 groups DCS Code.

000	001	002	003	004	005	006	007
010	011	012	013	014	015	016	017
020	021	022	023	024	025	026	027
030	031	032	033	034	035	036	037
040	041	042	043	044	045	046	047
050	051	052	053	054	055	056	057
060	061	062	063	064	065	066	067
070	071	072	073	074	075	076	077
100	101	102	103	104	105	106	107
110	111	112	113	114	115	116	117
120	121	122	123	124	125	126	127
130	131	132	133	134	135	136	137
140	141	142	143	144	145	146	147
150	151	152	153	154	155	156	157
160	161	162	163	164	165	166	167
170	171	172	173	174	175	176	177
200	201	202	203	204	205	206	207
210	211	212	213	214	215	216	217
220	221	222	223	224	225	226	227
230	231	232	233	234	235	236	237
240	241	242	243	244	245	246	247
250	251	252	253	254	255	256	257
260	261	262	263	264	265	266	267
270	271	272	273	274	275	276	277
300	301	302	303	304	305	306	307
310	311	312	313	314	315	316	317

320	321	322	323	324	325	326	327
330	331	332	333	334	335	336	337
340	341	342	343	344	345	346	347
350	351	352	353	354	355	356	357
360	361	362	363	364	365	366	367
370	371	372	373	374	375	376	377
400	401	402	403	404	405	406	407
410	411	412	413	414	415	416	417
420	421	422	423	424	425	426	427
430	431	432	433	434	435	436	437
440	441	442	443	444	445	446	447
450	451	452	453	454	455	456	457
460	461	462	463	464	465	466	467
470	471	472	473	474	475	476	477
500	501	502	503	504	505	506	507
510	511	512	513	514	515	516	517
520	521	522	523	524	525	526	527
530	531	532	533	534	535	536	537
540	541	542	543	544	545	546	547
550	551	552	553	554	555	556	557
560	561	562	563	564	565	566	567
570	571	572	573	574	575	576	577
600	601	602	603	604	605	606	607
610	611	612	613	614	615	616	617
620	621	622	623	624	625	626	627
630	631	632	633	634	635	636	637
640	641	642	643	644	645	646	647
650	651	652	653	654	655	656	657
660	661	662	663	664	665	666	667
670	671	672	673	674	675	676	677

700	701	702	703	704	705	706	707
710	711	712	713	714	715	716	717
720	721	722	723	724	725	726	727
730	731	732	733	734	735	736	737
740	741	742	743	744	745	746	747
750	751	752	753	754	755	756	757
760	761	762	763	764	765	766	767
770	771	772	773	774	775	776	777

IMPORTANT NOTE: The operaton of your UHF radio in Australia and New Zealand is subject to conditons in the following licenses: In Australia the ACMA Radio communicatons (Citzen Band Radio Statons) and in New Zealand by MED the General User Radio License for Citzen Band Radio.

Channel:	Frequency:	Use:	Channel Spacing:
Channel 1	476.4250	Duplex - Repeater Output	12.5 KHz
Channel 2	476.4500	Duplex - Repeater Output	12.5 KHz
Channel 3	476.4750	Duplex - Repeater Output	12.5 KHz
Channel 4	476.5000	Duplex - Repeater Output	12.5 KHz
Channel 5	476.5250	Duplex - Repeater Output (Emergency use only)	12.5 KHz
Channel 6	476.5500	Duplex - Repeater Output	12.5 KHz
Channel 7	476.5750	Duplex - Repeater Output	12.5 KHz
Channel 8	476.6000	Duplex - Repeater Output	12.5 KHz
Channel 9	476.6250	Simplex	12.5 KHz
Channel 10	476.6500	Simplex 4WD Drivers - Convoy, Clubs & National Parks	12.5 KHz
Channel 11	476.6750	Simplex Call Channel	12.5 KHz
Channel 12	476.7000	Simplex	12.5 KHz
Channel 13	476.7250	Simplex	12.5 KHz
Channel 14	476.7500	Simplex	12.5 KHz
Channel 15	476.7750	Simplex	12.5 KHz
Channel 16	476.8000	Simplex	12.5 KHz
Channel 17	476.8250	Simplex	12.5 KHz
Channel 18	476.8500	Simplex Caravan & Campers Convoy Channel	12.5 KHz

Channel 19	476.8750	Simplex	12.5 KHz
Channel 20	476.9000	Simplex	12.5 KHz
Channel 21	476.9250	Simplex	12.5 KHz
Channel 22	476.9500	Data Only (No Voice - No Packet)	25 KHz
Channel 23	476.9750	Data Only (No Voice - No Packet)	25 KHz
Channel 24	477.0000	Simplex	12.5 KHz
Channel 25	477.0250	Simplex	12.5 KHz
Channel 26	477.0500	Simplex	12.5 KHz
Channel 27	477.0750	Simplex	12.5 KHz
Channel 28	477.1000	Simplex	12.5 KHz
Channel 29	477.1250	Simplex Pacific Hwy (NSW) & Bruce Hwy (Qld) Road Channel	12.5 KHz
Channel 30	477.1500	Simplex UHF CB Broadcasts	12.5 KHz
Channel 31	477.1750	Repeater Input	12.5 KHz
Channel 32	477.2000	Repeater Input	12.5 KHz
Channel 33	477.2250	Repeater Input	12.5 KHz
Channel 34	477.2500	Repeater Input	12.5 KHz
Channel 35	477.2750	Repeater Input (Emergency Use Only)	12.5 KHz
Channel 36	477.3000	Repeater Input	12.5 KHz
Channel 37	477.3250	Repeater Input	12.5 KHz
Channel 38	477.3500	Repeater Input	12.5 KHz
Channel 39	477.3750	Simplex	12.5 KHz
Channel 40	477.4000	Simplex Highway Channel	12.5 KHz
Channel 41	476.4375	Duplex - Repeater Output	12.5 KHz

Channel 42	476.4625	Duplex - Repeater Output	12.5 KHz
Channel 43	476.4875	Duplex - Repeater Output	12.5 KHz
Channel 44	476.5125	Duplex - Repeater Output	12.5 KHz
Channel 45	476.5375	Duplex - Repeater Output	12.5 KHz
Channel 46	476.5625	Duplex - Repeater Output	12.5 KHz
Channel 47	476.5875	Duplex - Repeater Output	12.5 KHz
Channel 48	476.6125	Duplex - Repeater Output	12.5 KHz
Channel 49	476.6375	Simplex	12.5 KHz
Channel 50	476.6625	Simplex	12.5 KHz
Channel 51	476.6875	Simplex	12.5 KHz
Channel 52	476.7125	Simplex	12.5 KHz
Channel 53	476.7375	Simplex	12.5 KHz
Channel 54	476.7625	Simplex	12.5 KHz
Channel 55	476.7875	Simplex	12.5 KHz
Channel 56	476.8125	Simplex	12.5 KHz
Channel 57	476.8375	Simplex	12.5 KHz
Channel 58	476.8625	Simplex	12.5 KHz
Channel 59	476.8875	Simplex	12.5 KHz
Channel 60	476.9125	Simplex	12.5 KHz
Channel 61		Reserved for Future Expansion	
Channel 62		Reserved for Future Expansion	
Channel 63		Reserved for Future Expansion	
Channel 64	477.0125	Simplex	12.5 KHz

Channel 64	477.0125	Simplex	12.5 KHz
Channel 65	477.0325	Simplex	12.5 KHz
Channel 66	477.0625	Simplex	12.5 KHz
Channel 67	477.0875	Simplex	12.5 KHz
Channel 68	477.1125	Simplex	12.5 KHz
Channel 69	477.1375	Simplex	12.5 KHz
Channel 70	477.1625	Simplex	12.5 KHz
Channel 71	477.1875	Repeater Input	12.5 KHz
Channel 72	477.2125	Repeater Input	12.5 KHz
Channel 73	477.2375	Repeater Input	12.5 KHz
Channel 74	477.2625	Repeater Input	12.5 KHz
Channel 75	477.2875	Repeater Input	12.5 KHz
Channel 76	477.3125	Repeater Input	12.5 KHz
Channel 77	477.3325	Repeater Input	12.5 KHz
Channel 78	477.3625	Repeater Input	12.5 KHz
Channel 79	477.3875	Simplex	12.5 KHz
Channel 80	477.4125	Simplex	12.5 KHz

Licenses for Repeater Channels 44 & 45 will not be licensed for an additional 6 to 12 months to allow extra time for owners of Channel 5 Emergency repeaters to upgrade equipment to meet the new standards. Channels 1 to 8 and 41 to 48 - Repeater Channels Press the DUPLEX button on your radio to used any available repeaters. Channel 5 & 35 - Emergency use only - Monitored by Volunteers, No general conversations are to take place on this channel. Channels 22 & 23 - Data transmissions only (Excluding Packet). Channels 31 to 38 and 71 to 78 - Repeater inputs - Do not use these channels for simplex transmissions as you will interfere with conversations on channels 1 to 8 and 41 to 48. The Australian Government has legislated that channels 5 & 35 on the UHF CB Band are reserved for emergency use only. As at January 2007 the maximum penalties for the misuse of the legally allocated CB emergency channels are: For general misuse - if an individual 2 years imprisonment, otherwise $165,000 (a $220 on-the-spot fine can be issued in minor cases); or For interference to an Emergency call - if an individual 5 years imprisonment, otherwise $550,000. If you do find you are interfering with another persons conversation, just select another channel.

Transmit and Receive Procedure

Your two-way radio contains a transmitter and a receiver. To control your exposure and ensure compliance with the general population/ uncontrolled environment exposure limits, always adhere to the following procedure: • Transmit no more than 50% of the time.

• To receive calls, release the PTT button.

• To transmit (talk), press the Push to Talk (PTT) button.

Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting (in terms of measuring standards compliance).

Radio Operation and EME Exposure

Unauthorised antennas, modifications, or attachments could damage the radio and violate compliance. Do NOT hold the antenna when the radio is “IN USE.” Holding the antenna reduces the effective range. Do not use the radio if the antenna is damaged. If a damaged antenna makes contact with your skin, a minor burn can result.

Electromagnetic Iterference/Compatability

Nearly every electronic device is susceptible to electromagnetic interference (EMI). To avoid the possibility of electromagnetic interference and/or compatibility conflicts, turn off your radio in any location where posted notices instruct you to do so such as health care facilities.

Aircraft

When instructed to do so, turn off your radio when onboard an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

Medical Devices

Pacemakers

The Advanced Medical Technology Association recommends that a minimum separation of 6 inches (15cm) be maintained between a radio and a pacemaker. These recommendations are consistent with the independent research by and recommendations of the U.S. Food and Drug Administration.

People with pacemakers should:

• ALWAYS keep the radio more than 15cm from their pacemaker when the radio is turned ON.

• Not carry the radio in the breast pocket (Handheld Radio).

• Use the ear opposite the pacemaker to minimise the potential for interference.

• Turn the radio OFF immediately if there is any reason to suspect that interference is taking place.

Hearing Aids

Some radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

General Warnings & Precautions

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

⚠ Do not attempt to configure your transceiver while driving, it is dangerous.

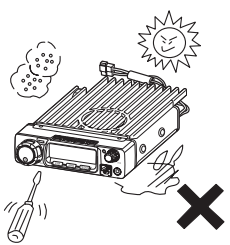
⚠ This transceiver is designed for a 13.8V DC power supply. Don't use a 24V battery to power on the transceiver.

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

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

⚠ 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 Crystal service agent or your dealer.



Transmitting Range

The talk range will depend on your surroundings and environment it will be affected by obstructions such as hills or buildings.Talk range depends on the terrain. It will be affected by concrete structures, heavy foliage and by operating radios indoors or in vehicles.

Your DB477I is simplex “one way at a time”. While you are speaking, you can not receive a transmission.

Your DB477I is on an open-license band. Always identify yourself when transmitting on the same channel.

IMPORTANT: Before transmitting on a UHF channel listen to ensure it is not already in use.

Transmitting (sending speech)

The unit is continuously in the Receive mode when the unit is turned ON and not transmitting. When a signal is received on the current channel, “RX” icon will be displayed on the LCD screen. a. Press and hold the PTT (Push to Talk) button to transmit your voice. The transmit signal icon “TX” will display on the LCD screen. b. Hold the unit in a vertical position with the Mic (Microphone) 5 cm away from the mouth. While holding the PTT button, speak into the microphone in a normal tone of voice. c. Release the PTT button when you have finished transmitting.

For others to receive your transmission, they must be on the same channel as you.

Call Ring Tone

You can use the CALL button to send a tone to other users on the same channel. To activate this feature; a. With the unit in normal mode, press and release the CALL button. The unit will transmit a 2-second page tone to the other unit/s set with the same channel within transmitting range. NOTE: This function is only possible every 60 seconds.

Roger Beep

This is a tone which is automatically transmitted whenever the PTT button is released. This alerts the receiving party that you have ended the transmission, and you are now in receive mode.

Duplex operation via Repeaters

This feature allows to use local repeater stations that are designed to automatically re-transmit your broadcast over a large area thus giving you increased range.
Repeaters stations are privately operated radio systems installed throughout Australia.
For example, if you wish to access a repeater station in your area which operates on channel 2 you only need to set the Duplex access on this Channel.
So, if you are in the range of a local repeater which transmits on channel 2, after setting your radio to allow access of the repeater on that channel, you will select channel 2 as normal, but during transmit operation your radio will automatically transmit to the repeater on channel 32.
Turning on/off Duplex on channels

a. Select the required channel to suit the repeater station you wish to access (Channels 1 – 8 and 41 – 48).
b. Press the Menu button twice, "RPT" icon will display
c. Press the UP or DOWN button to set the Duplex function to On or Off.
d. Press the PTT button to confirm your setting.
e. The RPT icon will display to indicate that Duplex is set on that channel.

Receive Channel	1	2	3	4	5*	6	7	8
Transmit channel	31	32	33	34	35*	36	37	38

Receive Channel	41	42	43	44	45	46	47	48
Transmit channel	71	72	73	74	75	76	77	78

* Channel 5 is emergency channel only

Channel 5 and 35 (paired for Duplex repeaters) are reserved as emergency channels and should be used only in an emergency. CTCSS and DCS will not operate on channels 5 and 35.

A list of currently authorised channels can be obtained from the ACMA website in Australia and the MED website in New Zealand. Channel 11 is a calling channel generally used to call others and channel 40 is the customary road vehicle channel.

Once contact is established on the calling channel, both stations should move to another unused "SIMPLEX" channel to allow others to use the calling channel.

Channels 22 and 23 are for Telemetry and Telecommand use, voice communications are not allowed on these channels by law. Channel 9 and above are the best choices for general use in Simplex mode.

Radiocommunications (Citizen Band Radio Stations) Class Licence 2002

No licence is required to own or operate this radio in Australia and New Zealand. The Radiocommunications (Citizen Band Radio Stations) Class Licence 2002 contains the technical parameters, operating requirements, conditions of licence and relevant standards for Citizen Band (CB) radios. CB radios must comply with the class licence for their use to be authorised under the class licence.

UHF channels and frequencies

IMPORTANT NOTE: The operation of your UHF radio in Australia and New Zealand is subject to conditions in the following licenses: In Australia the ACMA Radio communications (Citizen Band Radio Stations) and in New Zealand by MED the General User Radio License for Citizen Band Radio.

Notes

Technical assistance

If you need assistance setting up or using your CRYSTAL product now or in the future, call

CRYSTAL M Support. Australia

TEL: 03 – 8587 8898

FAX: 03 – 8587 8866 Mon-Fri 9am – 5pm AEST

Please retain this user guide for future reference.

If you would like to download a digital copy of this manual or any other Crystal M product, please visit the website //http://crystalm.com.au and select your product.

This manual is considered correct at time of printing but is subject to change. For latest manuals and updates refer to the website.

CRYSTAL

www.crystalm.com.au

CRYSTAL MOBILE WARRANTY AGAINST DEFECTS

This warranty against manufacturing defects is given by TDJ Australia Pty Ltd ACN 006 385 191). Our contact details are set out in clause 2.7.

1. Consumer guarantee

1.1 Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major *(description according to Australian Consumer Laws)* failure and compensation for any other reasonably foreseeable *(description according to Australian Consumer Laws)* loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to meet manufacturers specifications and the failure does not amount to a major failure.

1.2 To the extent we are able, we exclude all other conditions, warranties and obligations which would otherwise be implied.

2. Warranty against defects

2.1 This Warranty is in addition to and does not limit, exclude or restrict your rights under the Competition and Consumer Act 2010 (Australia) or any other mandatory protection laws that may apply. Consumer guarantees are a set of rules that apply to goods and services purchased by consumers under the Australian Consumer Law (ACL).

These rules set out the circumstances under which a business is required to provide a consumer with a remedy.

The consumer guarantees automatically apply regardless of any voluntary or extended warranty given by a seller or manufacturer of goods and services, or if such a warranty has expired.

2.2 We warrant our goods to be free from defects in materials and workmanship for the warranty period from the date of original sale (or another period we agree to in writing). Subject to our obligations under clause 1.2, we will at our option, either repair or replace goods which we are satisfied do not meet manufacturers specifications. We warrant any replacement parts for the remainder of the period of warranty for the goods into which they are incorporated.

2.3 To the extent permitted by law, our sole liability for breach of a condition, warranty or other obligation implied by law is limited (a) in the case of goods we supply, to any one of the following as we decide - (i) the replacement of the goods or the supply of equivalent goods; (ii) the repair of the goods; (iii) the cost of repairing the goods or of acquiring equivalent goods; (b) in the case of services we supply, to any one of the following as we decide – (i) the supplying of the services again; (ii) the cost of having the services supplied again.

2.4 For repairs outside the warranty period, we warrant our repairs to be free from defects in materials and workmanship for three months from the date of the original repair. We agree to re-repair or replace (at our option) any materials or workmanship which we are satisfied do not meet manufacturers specifications.

2.5 We warrant that we will perform services with reasonable care and skill and agree to investigate any complaint regarding our services made in good faith. If we are satisfied that the complaint is justified, and as our sole liability to you under this warranty (to the extent permitted at law), we agree to supply those services again at no extra charge to you.

2.6 To make a warranty claim you must before the end of the applicable warranty period, at your own cost, return the goods you allege do not meet manufacturers specifications, provide written details of the alleged defect, and give us an original or copy of the purchase receipt, sales invoice or some other evidence showing details of the transaction.

2.7 Send your claim to: TDJ Australia PTY LTD. 78 Mills Road, Braeside Melbourne
Victoria 3195, Australia,
TEL: 03 8587 8898 FAX: 03 8587 8866
Email: tdj-service-team@tdj.com.au

2.8 If we determine that your goods do not meet manufacturers specifications, we will pay for the cost of returning the repaired or replaced goods to you. If we find your goods meet manufacturers specifications and no major defect is found, we will contact you to arrange the return of the goods at your expense.

3. What this warranty does not cover

3.1 This warranty will not apply in relation to: (a) goods modified or altered in any way; (b) defects and damage caused by use with non Standard Communications products; (c) repairs performed other than by our authorized *service team*; (d) defects or damage resulting from misuse, accident, impact or neglect; (e) goods improperly installed or used in a manner contrary to the relevant instruction manual; or (f) goods where the serial number has been removed or made illegal.

4. Warranty period

4.1 We provide the following warranty on Crystal Mobile products. No repair or replacement during the warranty period will renew or extend the warranty period past the period from original date of purchase.

This products warranty period is 5 years from date of purchase