Operating Instructions

DBH05 – 80 Channel 0.5 watt UHF Hand held
DBH20 – 80 Channel 2 watt UHF Hand held

DBH09R - 80 Channel 1 watt UHF Hand held with
Rechargeable batteries and docking station

2 way citizen Band radios

DBH20

DBH05

DBH09R

Safety Information and Warnings

Information on Safe Operation
Read This Information Before Using Your CRYSTAL Radio. The operation of your UHF radio in Australia is subject to conditions in the following license:
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.

Radio Antenna
Do not use any radio that has a damaged antenna. If a damaged antenna comes in contact with the skin, a minor burn may result.
Unauthorized antennas, modifications, or attachments could damage the radio and violate compliance. Do NOT change or modify the antenna.
Do NOT hold the antenna when the radio is "IN USE." Holding the antenna reduces range and may cause bodily harm.

Safety and general use whilst in a vehicle
Check the State and Federal laws and regulations regarding the use of two way radios in the area where you drive, and always obey them.

For Vehicles fitted with Air Bags
Do not place your radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to the occupants of the vehicle.

Batteries
All batteries can cause property damage and/or bodily injury such as burns if conductive material such as jewellery, keys, or beaded chains touches exposed terminals. The material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

Do not replace or charge batteries in a potentially explosive atmosphere. Contact sparking may occur while installing or removing batteries and cause an explosion.

Potentially Explosive Atmospheres
Turn your radio OFF when in any area with a potentially explosive atmosphere. Sparks in such areas could cause an explosion or fire resulting in injury or even death. **NOTE:** Areas with potentially explosive atmospheres are often, but not always clearly marked. They include fueling areas such as below deck on boats; fuel or chemical transfer or storage facilities; areas where the air contains chemicals or particles, such as grain, dust, or metal powders; and any other area where you would normally be advised to turn off your vehicle engine.

Blasting Caps and Areas
To avoid possible interference with blasting operations, turn your radio OFF near electrical blasting caps or in a "blasting area" or in areas posted: "Turn off the two way radio." Obey all signs and instructions.

Exposure to Radio Frequency Energy
Your CRYSTAL two-way radio complies with Australian Communications Authority Radio communications (Electromagnetic Radiation-Human Exposure) Standard, 2003. To assure optimal radio performance and make sure human exposure to radio frequency electromagnetic energy is within the guidelines set out in the above standards always adhere to the following procedures.

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). Always hold the radio approximately 5cm in front of your mouth with the antenna pointing away from your head.

Radio Operation and EME Exposure

Unauthorized 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. If you wear a radio on your body when transmitting, always fit the radio on the belt clip (supplied). Always ensure the radio and it's antenna are at least 5cm from your body when transmitting.

Electromagnetic Interference/Compatibility
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 handheld wireless 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.
• 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.

Medical Devices - 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

Never use your radio outdoors during a thunderstorm. Keep the radio out of reach of babies and young children.

INSTALLATION

Removing the belt clip

Pull the belt clip latch away from the unit.

Installing the Batteries

Slide down the battery compartment cover.

Insert 4 x AAA batteries (not supplied).
Position the batteries according to the
polarity marking on the battery compartment.

After placing batteries into correct positions,
replace the battery cover.

DBH09R

Your **DBH09R** comes with a rechargeable battery pack.
Also included, is a desktop charger for the **DBH09R**.
The desktop charger will only charge the battery pack
provided and not other types of rechargeable batteries.

FOR USE OF NON RECHARGEABLE BATTERIES:

- Slide down the battery compartment cover.
- Insert 4 x AAA batteries (not supplied).
- Position the batteries according to the
  polarity marking on the battery compartment.

After placing batteries into correct positions, replace the battery cover.

Low Battery Meter Indicator

The radio can detect the low battery level when the battery voltage goes low. The battery icon will display the low battery status
When battery voltage is low, the empty battery symbol will appear and continue to blink. The battery symbol will continuously blink until it totally drains the battery voltage where then you will have to replace the batteries.

Transmitting Range

The talk range will depend on your surroundings and environment it will be affected by obstructions such as hills or buildings.

Don't try to use two radio units which are less than 1.5m (5 feet) apart. Otherwise, you may experience interference. Talk range depends on the terrain. It will be affected by concrete structures, heavy foliage and by operating radios indoors or in vehicles.

88	CTCSS Code. Changes from 1 to 38 as selected by the user.
	Displays the Battery change level. When the bars are reduced, the battery needs recharging.
TX	Displayed when transmitting a signal.
RX	Displayed when receiving a signal.
DCM	Displayed when the Dual Watch function is turned ON.
VOX	Displayed when the VOX feature is enabled.
RPT	Displayed when the repeater function is activated.

DBH05-DBH20-DBH09R

VOX = voice operated transmitter it allows you to transmit with you voice without pressing the button.

CA = call allows you to adjust different tones for calling the operator from the same channel.

REP = A repeater is a tool to communicate over a large distances.

RO = roger beep means a tone added to the end of broadcast, it indicates that the user/operator has conclude speaking.

BELL =symbol on the display = turn off/on the beep when using any buttons.

DCM = dual channel monitoring you can monitor between two channels eg: 1 to 22 or 50 to55.

DCS = DCS is a digital extension of CTCSS. It provides 104 extra, digitally coded, squelch codes that follow after the 38 CTCSS codes. CTCSS 1-38, followed by DCS1-104.

TO = time out is when the unit turns off after 30min or 60min when activated.

Operating the unit

Turning unit on/off:

1- Switching on

Press and hold the *MENU/PWR* until you hear a beep sound.

2- Switching off

Press and hold the *MENU/PWR* until you hear a beep sound.

Adjusting the Volume:

You have 8 preset volume levels. They are displayed on the LCD screen. To raise the volume press the up button and to decrease the volume, press the down button.

Lock & Unlock the device.

Press and hold CALL button for 6 seconds to lock the device.
Press and hold CALL button for 3 seconds to unlock the device.

Auto scan.

Press & hold the MONI button for 3 seconds to activate auto scan.
Press & hold the MONI button for 3 seconds to deactivate auto scan.

Changing Channels:

You have a maximum of 80 channels at your disposal. To communicate with another device, you must both be on the same channel.

To change channels, once you have turned your unit on, you need to press the *MENU/PWR* once and use the up/down buttons to scroll through to your desired channel. To set your desired channel, press the *MONI* button or wait up to 10 seconds.

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

Your unit is 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	7 1	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 Tele-command 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.

Radio communications (Citizen Band Radio Stations)
Class Licence 2002

No licence is required to own or operate this radio in Australia and New Zealand. The Radio communications (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.

Technical Assistance

If you need assistance setting up or using your CRYSTAL product now or in the future, call CRYSTAL Support. Australia TEL: 03 – 8587 8898 FAX: 03 – 8587 8866

Mon-Fri 9am – 5pm AEST

Please retain this user guide for future reference.